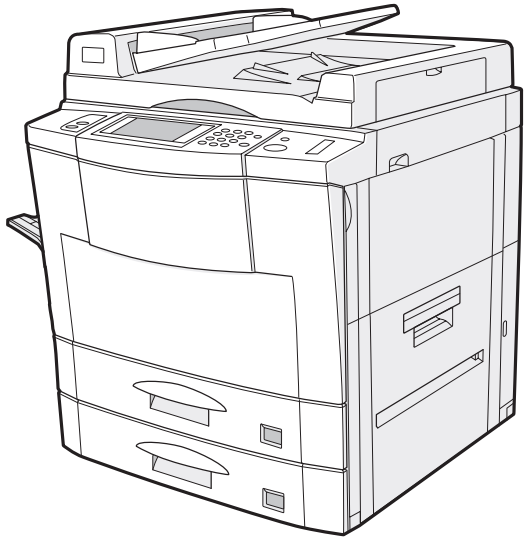
SHARP SERVICE MANUAL

CODE: 00ZAR405//A1E



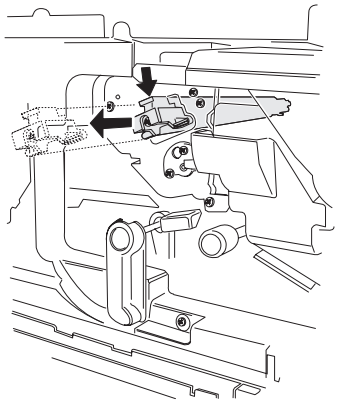
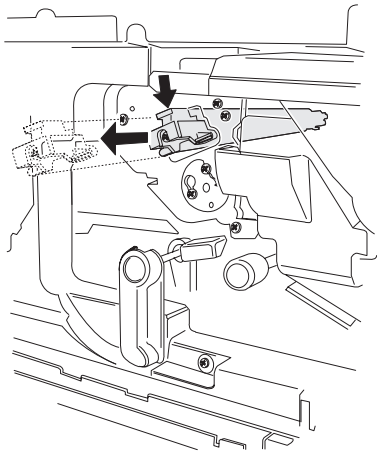
Digital Copier

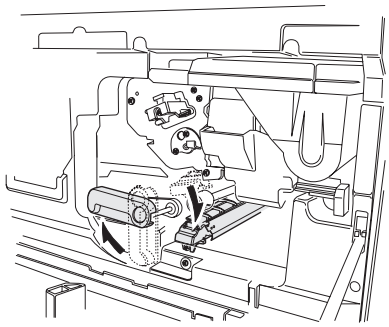
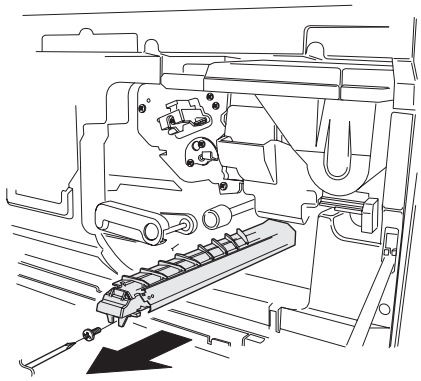
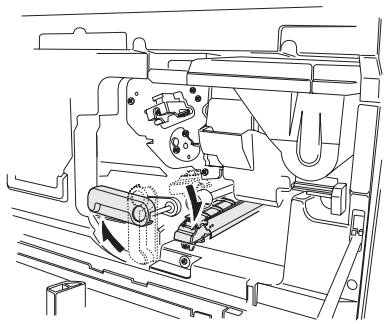
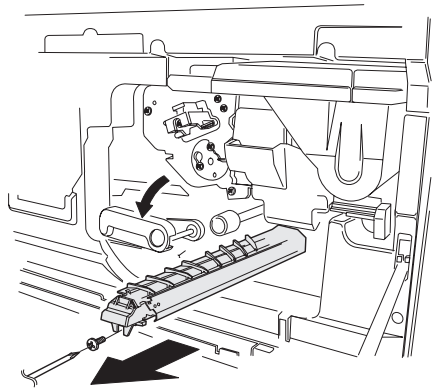
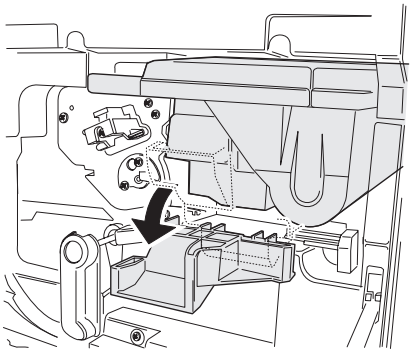
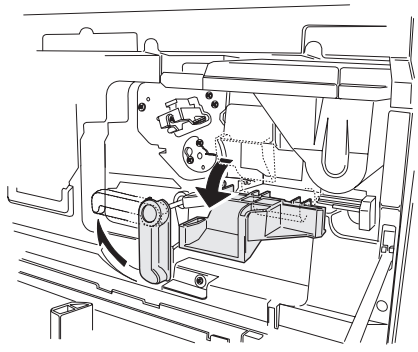
AR-280
AR-285
AR-335
MODEL AR-405

CONTENTS

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

No.	AR-280/285/335			AR-405	
	Page	Section	Content	Change	Remark
	1 – 1	[1] – 1	**A. Touch panel**	Display change	(Refer to the section of Touch panel in EXTERNAL VIEW AND INTERNAL STRUCTURE.)
	1 – 1	[1]	**C. Automatic document feeder as standard provision** Without opening the document table cover, documents can be automatically fed and copied. The automatic document feeder provided in the AR-285/335 allows automatic reversion of documents for duplex copying as well as simplex copying. (The automatic document feeder of the AR-280 allows only simplex copying.)	**C. Automatic document feeder as standard provision** Without opening the document table cover, documents can be automatically fed and copied. The automatic document feeder provided in the AR-405 allows automatic reversion of documents for duplex copying as well as simplex copying.	
			E. 776-step zooming The zooming function allows selection of the magnification ratio from 25% to 800% in 776 steps (1% increment). (When the automatic document feeder (AR-280) is used, zooming from 25% to 200% in 176 steps (1% increment) is allowed.)	**E. 376-step zooming** The zooming function allows selection of the magnification ratio from 25% to 400% in 376 steps (1% increment). (When the automatic document feeder.)	
	1 – 6		System outline (Options)	(Refer to the attached sheet.)	
	2 – 1	[2]	SPECIFICATIONS	(Refer to the attached sheet.)	
	3 – 1 3 – 3	[3]	Option spec	(Refer to the attached sheet.)	
	4 – 1	[4] – 1 – A	(Refer to the attached sheet.)		
	4 – 2	[4] – 1 – B			
	4 – 3	[4] – 1 – C			
	4 – 4	[4] – 1 – D			
	4 – 5	[4] – 1 – E			
	4 – 6	[4] – 4 – A	Manufacturing No. identification	illustration and description of Manufacturing No. are changed.	
	5 – 3	[5] – 2 – C	C. Charger cleaning • Main charger unit electrode cleaning ① Open the front cabinet. ② Press the hook section of the main charger unit to release lock. Pull out and remove the main charger unit from the copier body. 	illustration (Drum positioning plate shape) change 	

No.	AR-280/285/335			AR-405	
	Page	Section	Content	Change	Remark
	5 – 4	[5] – 2 – C	• Transfer/separation charger unit wire cleaning ① Slightly lift the transport section open/close lever and tilt it to the right.  ② Remove the driver transfer separation charger fixing screw, and remove the transfer/separation charger unit from the copier body. 	Illustration (Drum positioning plate shape) change • Transfer/separation charger unit wire cleaning ① Slightly lift the transport section open/close lever and tilt it to the right.  ② Remove the driver transfer separation charger fixing screw, and remove the transfer/separation charger unit from the copier body. 	
	5 – 6	[5] – 2 – 6	G. Developing unit setting (1) Remove the developing unit. ① Open the front cabinet. ② Tilt the developing unit lever toward you, and pull out the toner cartridge until it stops. 	Illustration (Drum positioning plate shape) change G. Developing unit setting (1) Remove the developing unit. ① Open the front cabinet. ② Tilt the developing unit lever toward you, and pull out the toner cartridge until it stops. 	
				Printer kit AR-PB2 installation procedure added.	

<table>
<tr><th rowspan="2">No.</th><th colspan="3">AR-280/285/335</th><th colspan="2">AR-405</th></tr>
<tr><th>Page</th><th>Section</th><th>Content</th><th>Change</th><th>Remark</th></tr>
<tr><td></td><td>6 – 1

6 – 7
7 – 1
7 – 4
7 – 5

7 – 6
7 – 7

7 – 8

7 – 22
7 – 23

7 – 24</td><td>

[7] – 2 – B

[7] – 2 – C

[7] – 2 – D

</td><td>[6] EXTERNAL VIEW AND INTERNAL STRUCTURE

Separation DC component table

Copy mode table

I. RADF

</td><td>(Refer to the attached sheet.)

Two illustrations for AR-405 given.
illustration for AR-405 given.
illustration for AR-405 given.
illustration for AR-405 given.
Initial value changed.
illustration for AR-405 given.
illustration for AR-405 given.
illustration for AR-405 added.
Three illustrations changed.
One illustration, model name of RADF in the descriptions, and the description of the load check mode changed.
Continued from the above.</td><td></td></tr>
<tr><td></td><td>9 – 1
~</td><td>[9]</td><td>MAINTENANCE</td><td>(New)
(Refer to the attached sheet.)</td><td></td></tr>
<tr><td></td><td>10 – 2

10 – 3

10 – 5
10 – 6
12 – 1</td><td>[10] – 3

[10] – 7
[12] – 2</td><td>A. OPC drum
B. Drum separation pawl
C. Cleaner blade
F. Transfer/separation charger

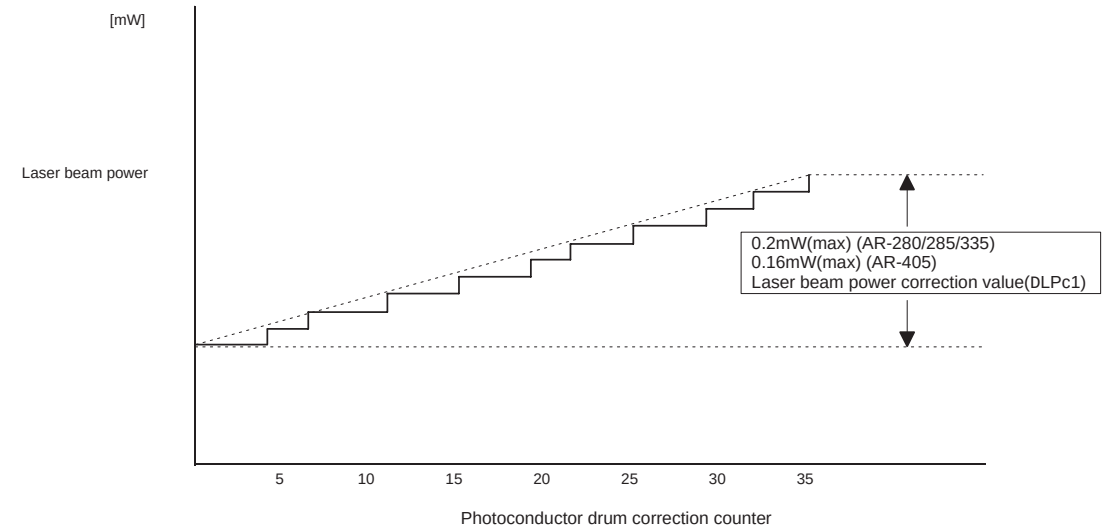
7. Laser scanner unit
Image forming section correction (process correction) operation list
<table>
<tr><th>Execution conditions, operation timing</th></tr>
<tr><td>Before process correction</td></tr>
<tr><td>*1</td></tr>
<tr><td>*1</td></tr>
<tr><td>OPC drum specified rotation time (every 20,000 sec)</td></tr>
<tr><td>Immediately after correction of main charger grid voltage (*1)</td></tr>
<tr><td>OPC drum specified rotation time (every 20,000 sec)</td></tr>
<tr><td>Immediately after correction of main charger grid voltage (*1)</td></tr>
<tr><td>The developing bias voltage correction is made over the specified level immediately after developing bias voltage correction. (*1)</td></tr>
</table></td><td>illustration changed.
illustration changed.
illustration changed.
illustration changed.
illustration changed.
illustration changed.

OPC drum specified rotation time is changed to (16,600 sec).

OPC drum specified rotation time is changed to (16,600 sec).</td><td></td></tr>
</table>

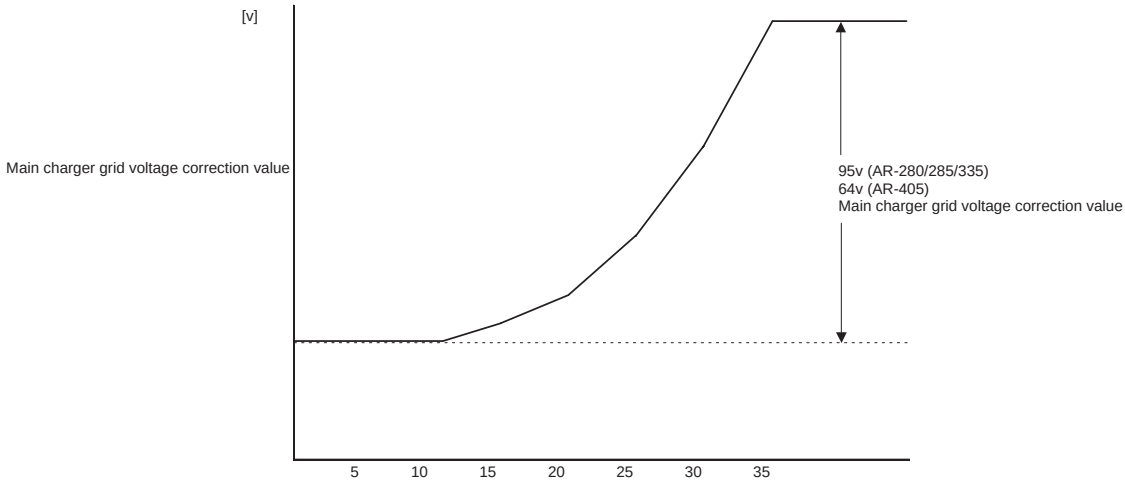
No.	AR-280/285/335			AR-405	
	Page	Section	Content	Change	Remark
	12 – 2	[12] – 3 – B			

LASER BEAM POWER CORRECTION 1



1 count: 20,000 sec (Photoconductor drum rotation time) (AR-280/285/335)
16,600 sec (Photoconductor drum rotation time) (AR-405)

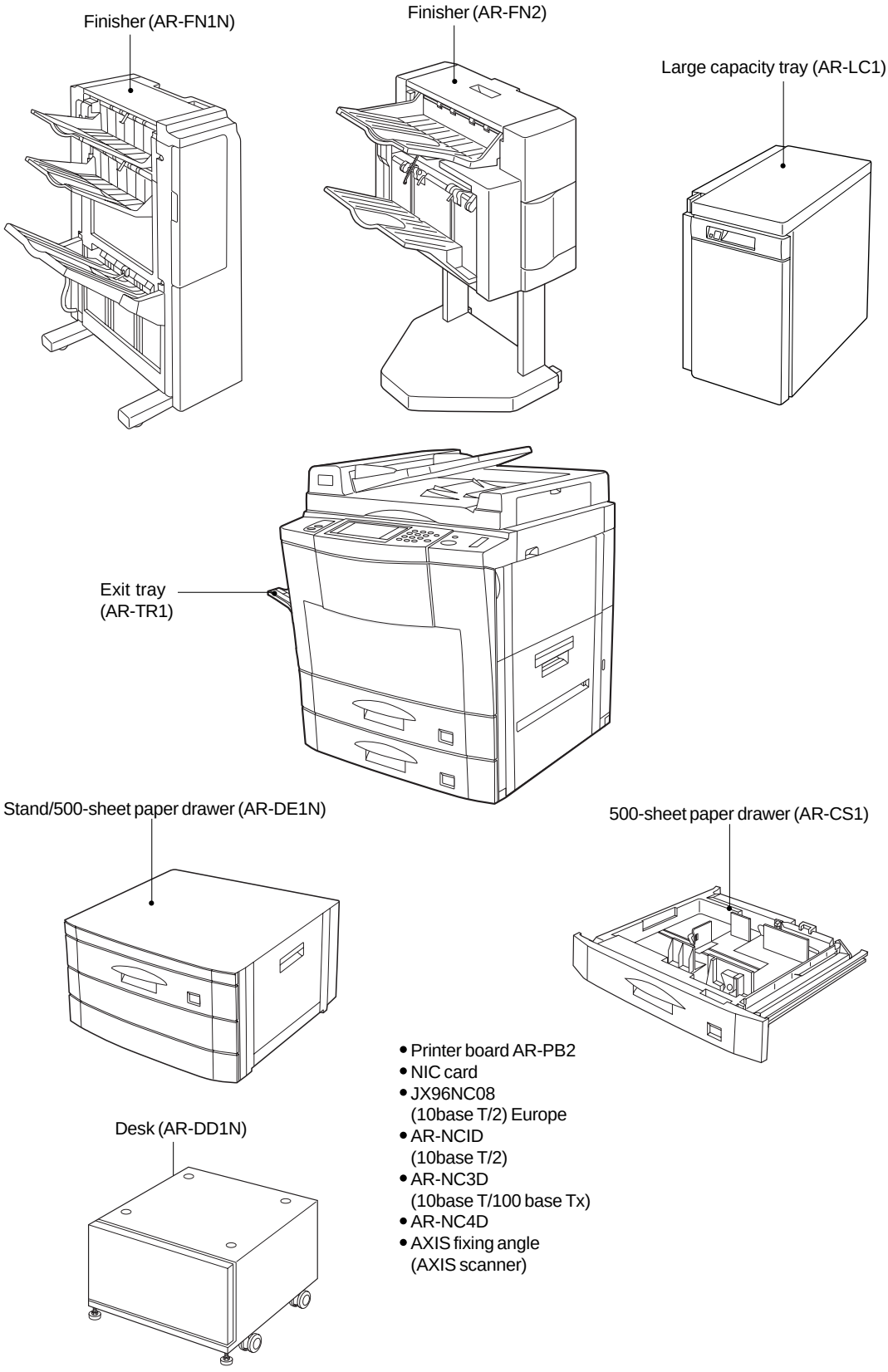
MAIN CHARGER GRID VOLTAGE CORRECTION 1



1 count: 20,000 sec (Photoconductor drum rotation time) (AR-280/285/335)
16,600 sec (Photoconductor drum rotation time) (AR-405)

2. System outline (Options) (AR-405)

The options which are available for this copier are shown below.



15. Other specifications

Photoconductor kind	OPC drum
Photoconductor dia.	65 ϕ
Process cleaning	Blade
Exposure lamp	No-electrode xenon lamp
Developing system	Dry, 2-component magnetic brush development
Charging system	DC negative scorotron (saw tooth electrode)
Transfer system	DC positive control
Separation system	AC corotron/DC bias separation pawl
Fusing system	Heat roller
Fusing cleaning	None

16. Outlook

	AR-280	AR-285	AR-335
W × D × H (mm)	600 × 695 × 698	600 × 695 × 718	600 × 695 × 718
Machine occupying dimensions	1292 × 695	1292 × 695	1292 × 695
Weight	About 89 kg	About 101 kg	About 101 kg

17. Power Supply

Voltage	100 V, 110 V, 120 V, 220-230 V, 240 V
Frequency	50/60 Hz Common

18. Power consumption

	AR-280	AR-285	AR-335
Max. power consumption	About 1450 W	About 1450 W	About 1450 W
Average power consumption during operation	1150 W	1150 W	1150 W
Power consumption in standby	200 W	200 W	200 W
Energy consumption efficiency	144 wh/h	144 wh/h	144 wh/h

19. Environmental measures

A. EnergyStar

Low power mode (Pre-heat mode)	AR-280	Less than 112.8 W
	AR-285	Less than 112.8 W
	AR-335	Less than 132.05 W
	Recovery time	Less than 30 Sec
Sleep mode (Power save mode)	Power consumption	Less than 15 W
	Shift time	Max. 240 min (Default 60 min)

B. Energy 2000

Standby mode (Ready state)	AR-280	Less than 117.44 W
	AR-285	Less than 117.44 W
	AR-335	Less than 133.59 W
OFF mode (Power OFF)		Less than 1 W

20. Combination of functions

	Independent zooming	AMS	Water mark	Stamp	Page print	Date print	Black-white reversion	Centering	Edge erase	Binding margin	A2 copy (Document table only)	1-set 2-copy (Document table only)	Middle binding	Repeat	Multi shot (DF only)	OHP insert paper	Cover insertion (DF only)	Hi-Fi copy	Duplex copy direction switch	Offset	Group	Sort	Staple sort
S → S	○	○	○	○	○	○	○	○	○	○	○	○	▲	○	○	○	○	○	×	○	○	○	○
S (Even number) → D	○	○	○	○	○	○	○	○	○	○	×	○	▲	○	○	×	○	×	○	○	○	○	○
S (Odd number) → D (DF only)	○	○	○	○	○	○	○	○	○	○	×	×	▲	○	○	×	○	×	○	○	○	○	○
S → D (Auto)	○	○	○	○	○	○	○	○	○	○	×	○	▲	○	○	×	○	×	○	○	○	○	○
D → D (DF only)	○	○	○	○	○	○	○	○	○	○	×	×	▲	○	○	×	○	×	×	○	○	○	○
D → S (DF only)	○	○	○	○	○	○	○	○	○	○	×	×	▲	○	○	○	○	○	×	○	○	○	○
Staple sort	○	○	○	○	○	○	○	○	○	○	×	○	×	○	○	×	○	×	○	○	×	×	
Sort	○	○	○	○	○	○	○	○	○	○	×	○	○	○	○	△	○	△	○	○	×		
Group	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	○	○	○			
Offset	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
Duplex copy direction switch	○	○	○	○	○	○	○	○	○	○	×	×	○	×	×	×	○	×					
Hi-Fi copy (✳)	○	○	×	×	×	×	×	×	○	○	×	○	×	×	×	○	○						
Cover insertion (DF only)	○	○	○	○	○	○	×	○	○	○	×	×	×	×	×	×							
OHP insert paper	○	○	○	○	○	○	×	○	○	○	×	○	×	×	×								
Multi shot (DF only)	×	×	○	○	○	○	×	○	○	○	×	×	×	×									
Repeat	○	×	○	○	○	○	○	○	○	○	×	×	×										
Middle binding	×	○	○	○	○	○	×	○	○	○	×	×											
1-set 2-copy (Document table only)	○	○	○	○	○	○	×	○	○	○	×												
A2 copy (Document table only)	○	×	×	×	×	×	×	×	×	×													
Binding margin	○	○	○	○	○	○	○	○	○														
Edge erase	○	○	○	○	○	○	○	○															
Centering	○	○	○	○	○	○	○																
Black-white reversion	○	○	×	○	○	○																	
Date print	○	○	○	○	○																		
Page print	○	○	○	○																			
Stamp	○	○	×																				
Water mark	○	○																					
AMS	○																						

▲ Follows the setting on the middle binding display.
△ Only one set of copies available.
✳ Combination with SPF mode is inhibited.

[2] SPECIFICATIONS

1. Machine Type

Product Name	CPM	Type		Document Feeder	Paper Exit	Memory	
						RAM	HD
AR-405	40	Duplex	Desk Top	RADF	1 Tray	16 MB	2 GB

∗ Memory capacity is of the main body only, excluding optional expansion memory.

2. Copy Speed

A. Basic Speed

	AR-405
1 Scan 1 Copy	34 cpm
1 Scan Multi-copy	40 cpm

∗ Speeds from all the paper feed ports including the normal copy and the manual feed copy.

B. Normal copy (100%)

	AR-405
A4/8.5 × 11	40
A3/11 × 17	19
B4/8.5 × 14/8.5 × 13	24
B5/A5/8.5 × 5.5	40
A4R/B5R/8.5 × 11	27

C. Enlargement copy (400%)

	AR-405
A4/8.5 × 11	40
A3/11 × 17	19
B4/8.5 × 14/8.5 × 13	24
B5/A5/8.5 × 5.5	40
A4R/B5R/8.5 × 11	27

D. Reduction copy (25%)

	AR-405
A4/8.5 × 11	40
A3/11 × 17	17
B4/8.5 × 14/8.5 × 13	24
B5/A5/8.5 × 5.5	40
A4R/B5R/8.5 × 11	27

E. First Copy Time

(1) Basic Speed

Model	AR-405
Speed	4.2 seconds

When the paper is fed from the Upper tray on the base unit.

Machines are measured when paper is fed from the upper tray of 2-tray exit unit.

(2) Detail

	AR-405
Upper cassette	4.5 seconds
Lower cassette	5.0 seconds
Multi-Bypass Tray	4.6 seconds
Stand/Upper paper drawer	5.9 seconds
Stand/Medium paper drawer	6.2 seconds
LCC	5.2 seconds

Refer to each specification for the first copy time when paper is fed from the document feeder or the optional paper feed tray.

(3) First copy time from the document feeder

Model	AR-405
When the SPF is used	—
When the RADF is used	7.6 seconds

When the paper is fed from the Upper tray on the base unit.

3. OC/DF

A. Document Table

Max. document size		A3/11 × 17
Document reference position		Center left
Document detection		Yes
Detection size	Inch Series	11 × 17, 8.5 × 14, 8.5 × 11, 8.5 × 11R, 8.5 × 5.5
	AB Series	A3, B4, A4, A4R, A5
	Australia	A3, 216 × 330, A4, A4R, A5 (Note 1)
	B5 areas	A3, B4, A4, A4R, B5, B5R
OR guide display	Inch Series	11, 8.5, 5.5
	AB Series	A3/A4, B4/B5, A4R/A5, B5R, 11, 8.5 (Note 2)

(Note 1) For also the other areas than Australia, "B4/8.5 × 11" can be changed to "8.5 × 13" by the simulation.

(Note 2) The display of 8.5" for AB series is of the line display only. There is no size display.

B. RADF (AR-405)

(1) Document set

Set direction	Face up		
Set position	Center reference		
Set quantity	A4/8.5 × 11	50 sheets	35 ~ 80g/m^2: Thickness Less than 6.5 mm
	Greater than the above	30 sheets	80 ~ 128g/m^2: Thickness Less than 5 mm (50 sheets of 80g/m^2)

(2) Document transport system

Document transport system	Belt system
Document feed sequence	Lower take-up paper feed (Face up paper feed)

(3) Document size

Document size	AB Series	A3 ~ A5
	Inch Series	11 × 17 ~ 8.5 × 5.5
Weight	35 ~ 128g/m^2 (10 ~ 34 lbs.)	

(4) Document stop system

Document stop system	Stopper system (Position control for single copy) (Duplex copy)

(5) Document detection on the tray

Document detection on the tray	Yes	
Detection size	Inch Series	11 × 17, 8.5 × 14, 8.5 × 11, 8.5 × 11R, 8.5 × 5.5, 8.5 × 13
	AB Series	A3, B4, A4, A4R, A5, 8.5 × 13
	B5 area	A3, B4, A4, A4R, B5, B5R, A5
	Australia	A3, B4, A4, A4R, A5, 216 × 330
Document guide display	Inch Series	11, 8.5, 5.5
	AB Seires	A3/A4, B4/B5, A4R/A5, B5R, 8.5 (Note)

(Note) AB series 8.5" display is of line display only. Size display is not made.

When setting Sim, "8.5 × 14" and "8.5 × 13" are separately detected.

(7) Document mix feed

Document mix feed	Mix paper feed	Possible (Same width size)
	Random paper feed	Possible

No linkage with AMS is made.

(8) Document reversion

Document reversion	Yes

(9) Display

Display section	LED display	Document feed display section
		Document remaining display

(10) Stream mode

Stream mode	The stream mode can be selected by the key operation program.

4. Paper feed

A. Outline of paper feed

Copy size (Max. ~ Min.)	AB Series	A3 ~ A6R
	Inch Series	11 × 17 ~ 8.5 × 5.5
Paper feed system		2 Tray + Manual Feed Tray
Paper feed capacity		500 × 2 + 50 (80g/m^2)
Remaining detection	Paper feed tray section	Level detection available
		(0, ~ 25%, ~ 50%, ~ 85%, ~ 100%)
	Manual Feed Tray	Empty detection only available

B. Details of paper feed section

(1) Paper feed tray

Paper feed size	AB Series	A3/B4/A4/A4R/B5/B5R/A5
	Inch Series	11 × 17/8.5 × 14/8.5 × 13/ 8.5 × 11/8.5 × 11R/5.5 × 8.5
Paper weight		56 ~ 105g/m^2 (14 ~ 28 lbs.)
Paper size selection		User operation (slide switch system)
Slide switch	AB Series	A5/A4/A4R/B4/A3/B5/8.5 × 11/ EXTRA
	Inch Series	11 × 17/8.5 × 14/8.5 × 13/8.5 × 11/ 8.5 × 11R/5.5 × 8.5/A4/EXTRA
Cassette attachment/detachment		Only the lower cassette possible

When the slide switch is set to "Special", the operation is made on the set size of the key operator program.
(Sizes of 13" in AB series and B5 are set with the key operator program.)

(2) Manual Feed Tray

Manual feed tray type		Folding, complete attachment
Paper size	AB Series	A3 ~ A6R
	Inch Series	11 × 17 ~ 8.5 × 5.5
	Paper Weight	56 ~ 128g/m^2 (14 ~ 34 lbs.), 176g/m^2 (index paper), 200g/m^2 (cover paper) (For greater than 105g/m^2, 28lbs, the size is A4 or smaller. For greater than 128g/m^2 (34 lbs) portrait feed only.
Paper kind	Multi feed	Standard paper, special paper
	Single feed	Standard paper, special paper, No. 2 original paper
	Special paper	OHP, label paper, reproduction paper, index paper, cover paper
		For multi and back surface copy, only the single paper feed is allowed.
Detection size	AB Series	A3/B4/A4/A4R/B5/B5R/A5/A6R/ 11 × 17/8.5 × 14/8.5 × 11/ 7.25 × 10.5
	Inch Series	11 × 17/8.5 × 14/8.5 × 11/ 8.5 × 11R/5.5 × 8.5/7.25 × 10.5/ A3/B4/A4/B5/A6R
Manual feed tray guide display	AB Series	A3/A4, B4/B5, A4R/A5, B5R, 11, 8.5 (NOTE 2)
	Inch Series	11 × 8.5, 5.5

(Note 1) Selection between 8.5 × 14 and 8.5 × 13 is possible with the simulation.

(Note 2) For 11" × 8.5" of AB series, only the line is displayed and the size is not displayed.

(3) Dehumidifying heater

Yes/No	No

5. Multi Copy

Multi max. quantity	999

6. Warm up

Warm up time	Less than 75 Sec
Pre-heat yes/no	Yes
Jam recovery time	About 10sec (Leaving the machine for 60 sec after opening the door, standard condition, polygon stop.)

7. Copy magnification ratio

Fixed magnification ratio	AB Series	25, 50, 70, 81, 86, 100, 115, 122, 141, 200, 400%
		5R + 6E
	Inch Series	25, 50, 64, 77, 95, 100, 121, 129, 141, 200, 400%
		5R + 6E
Zoom width		25 ~ 400%
Independent magnification width		25 ~ 400% for horizontal/vertical

8. Exposure

Exposure mode	2 gradations photo	Auto, character, character/photo, photo
Manual steps		9 steps
Resolution	Read	400 dpi
	Write	600 dpi
Gradation	Read	256 gradations
	Write	2 gradations
Toner save mode		Set with the key operator program. (In U.K., it is treated by a serviceman.)

9. Print Aria

A. Max. print area

Max. area	AB Series	416 × 293 mm
	Inch Series	428 × 275 mm

B. Loss width

Void area	Lead edge 3 mm or less, rear edge 4 mm or less, FR total 5 mm or less
Image Loss	Less than 5 mm

10. Paper Exit

A. Paper exit form

	AR-405
Paper exit form	1-tray paper exit

B. Paper exit section

Paper exit tray capacity	Upper Tray	250 sheets
Paper exit surface (Face up/Face down)	Upper Tray	Face up
Paper exit timing	Upper Tray	Copy

C. Paper size

		Size	Paper Weight
Upper Tray	AB Series	A3 ~ A6R	50 ~ 128g/m^2, 176g/m^2, 200g/m^2
	Inch Series	11 × 17 ~ 8.5 × 5.5	
Lower Tray	AB Series	A3 ~ A5	50 ~ 105g/m^2
	Inch Series	11 × 17 ~ 8.5 × 5.5	

Duplex pass section : 50 ~ 105g/m^2
For greater than 105g/m^2, the paper size is A4/8.5 × 11 or smaller.

11. Duplex Module

A. Auto Duplex Unit

	AR-405
Auto Duplex Unit	Standard

B. Paper Size

Paper size	AB Series	A3, B4, A4, A4R, B5, B5R, A5
	Inch Series	11 × 17, 8.5 × 14, 8.5 × 13, 8.5 × 11, 8.5 × 11R, 7.25 × 10.5
Paper Weight		56 ~ 105g/m^2 (Same as the paper feed section of the main body)

C. Capacity

Capacity	1 Sheet (Single Pass Method)

12. Shipping form

A. Packing form

Body	Body/accessories

B. Paper Size

First Tray	AB Series	A3
	Inch Series	11 × 17
Second Tray	AB Series	A3
	Inch Series	11 × 17

13. Additional functions

A. Main body functions

APS	○	
AMS	○	AMS by flow scan with DF is not allowed.
Auto tray switching	○	
1 scan multi copy	○	
Rotation copy	○	
Electronic sort	○	
Pre-heat	○	Conditions are set with the key operation.
Auto shut off	○	Conditions are set with the key operation.
Message display	○	
Key operator program	○	
Communication (RIC)	○	
Process control	○	
Coin vendor	○	Only the connector is provided on the PWB.

B. Copy function

Job call/registration	○	9
Dept. control	○	Max. 50 dept. (Only the copy function is controlled.)
Binding margin	○	Shift width AB series: 9mm, Inch series: 1/4" with adjustment (Binding direction selectable)
Edge erase	○	AB series: 6mm, Inch series: 1/4" with adjustment
Center erase	○	
1-set, 2-copy	○	
Independent zooming	○	25 ~ 400% for vertical/horizontal
White/black reversion	○	All surface only (only in the manual mode)
Cover paper	○	Cover/back cover/cover and back cover
OHP insert paper	○	Insert paper copy Yes/No selectable
Hatching	×	
Mirror image	×	
Centering	○	
Multi shot (Nin1)	○	Paper feed size is up to A4.
Repeat copy	○	
Date print	○	Time setting by the key operation.
Stamp registration	×	
Distribution list composition	×	
Composed data edition	×	
Stamp function	○	
Middle binding	○	
Page print	○	

14. Options

	(Model Name)	AR-405
Document Feeder	RADF	Standard
Paper Feed	1 Tray Desk (AR-DE1N)	Option
	Large Capacity Tray (AR-LC1)	Option
	Tray Module (AR-CS1)	Option
	Desk (AR-DD1)	Option
Duplex Module	Auto Duplex Module (AR-DU1)	Standard
Finishing	Dual Tray Output Unit (AR-TR1)	Option
	Finisher (AR-FN1N)	Option
	Finisher (AR-FN2)	Option

15. Other specifications

Photoconductor kind	OPC drum
Photoconductor dia.	65 ϕ
Process cleaning	Blade
Exposure lamp	No-electrode xenon lamp
Developing system	Dry, 2-component magnetic brush development
Charging system	DC negative scorotron (saw tooth electrode)
Transfer system	DC positive corotron
Separation system	AC corotron/DC bias separation pawl
Fusing system	Heat roller
Fusing cleaning	None

16. Outlook

	AR-405
W × D × H (mm)	600 × 700 × 718
Machine occupying dimensions	1292 × 700
Weight	About 98 kg

17. Power Supply

Voltage	100 V, 110 V, 120 V, 220-230 V, 240 V
Frequency	50/60 Hz Common

18. Power consumption

	AR-405
Max. power consumption	About 1440 W

19. Environmental measures

A. EnergyStar

Low power mode (Pre-heat mode)	AR-405	Less than 159 W
	Recovery time	Less than 30 Sec
Sleep mode (Power save mode)	Power consumption	Less than 15 W
	Shift time	Max. 240 min (Default 60 min)

20. Combination of functions

	Independent zooming	AMS	Water mark	Stamp	Page print	Date print	Black-white reversion	Centering	Edge erase	Binding margin	1-set 2-copy (Document table only)	Middle binding	Repeat	Multi shot (DF only)	OHP insert paper	Cover insertion (DF only)	Duplex copy direction switch	Offset	Group	Sort	Staple sort
S → S	○	○	○	○	○	○	○	○	○	○	○	▲	○	○	○	○	×	○	○	○	○
S → D (Auto)	○	○	○	○	○	○	○	○	○	○	○	▲	○	○	×	○	○	○	○	○	○
D → D (DF only)	○	○	○	○	○	○	○	○	○	○	×	▲	○	○	×	○	×	○	○	○	○
D → S (DF only)	○	○	○	○	○	○	○	○	○	○	×	▲	○	○	○	○	×	○	○	○	○
Staple sort	○	○	○	○	○	○	○	○	○	○	○	×	○	○	×	○	○	○	×	×	
Sort	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	○	○	×		
Group	○	○	○	○	○	○	○	○	○	○	○	○	○	○	△	○	○	○			
Offset	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○	○				
Duplex copy direction switch	○	○	○	○	○	○	○	○	○	○	×	○	×	×	×	○					
Cover insertion (DF only)	○	○	○	○	○	○	×	○	○	○	×	×	×	×	×						
OHP insert paper	○	○	○	○	○	○	×	○	○	○	○	×	×	×							
Multi shot (DF only)	×	×	○	○	○	○	×	○	○	○	×	×	×								
Repeat	○	×	○	○	○	○	○	○	○	○	×	×									
Middle binding	×	○	○	○	○	○	×	○	○	○	×										
1-set 2-copy (Document table only)	○	○	○	○	○	○	×	○	○	○											
Binding margin	○	○	○	○	○	○	○	○	○												
Edge erase	○	○	○	○	○	○	○	○													
Centering	○	○	○	○	○	○	○														
Black-white reversion	○	○	×	○	○	○															
Date print	○	○	○	○	○																
Page print	○	○	○	○																	
Stamp	○	○	×																		
Water mark	○	○																			
AMS	○																				

▲ Follows the setting on the middle binding display.
△ Only one set of copies available.

[3] OPTIONS

A. Large capacity paper feed tray AR-LC1

(1) Paper feed capacity

Paper feed capacity	3,000 sheets (80g/m^2 equivalent)

(2) Paper feed detection

Remaining paper quantity detection	Available (5-step sensor with empty detection)
Detection width	0% (empty) ~ 25%, ~ 50%, ~ 75%, ~ 100%

(3) Paper size

Paper size	AB series	A4/B5
	Inch series	Letter
Paper weight		56 ~ 105g/m^2, 14 ~ 28lbs (same as the copier paper feed section)

(4) Size selection

Selection	Made by serviceman

(5) Size detection

Size detection	Set by the simulation.

(6) Dehumidifying heater

Yes/No	No

(7) Shipping form

Shipping size	AB series	A4
	Inch series	Letter

(8) Power source

Power source	Supplied from the copier (DC 5V/DC 24V)

(9) Power consumption

Max. power consumption	About 17.6W
Stand-by	About 1.2W

(10) External view

External dimensions	325 (W) × 536 (D) × 572 (H)mm
Weight	About 32kg
Box color	Frosty gray

B. Paper feed desk AR-DE1, AR-DE1N

Number of paper feed steps	One step (Two steps when extended.)	
Standard/option	One step can be optionally added. (The cassette module can be added.)	
	Option model	AR-CS1
Cassette removal	Possible only in the lower stage	

Refer to the cassette module.

(1) Paper feed capacity

Standard	500 sheets × 1 stage
Cassette module installed	500 sheets × 2 stages

The capacity is based on 80g/m^2.
If the paper weight is 75g/m^2, 550 sheets can be loaded.

Remaining quantity detection	Remaining paper quantity detection	Available (5-step sensor with empty detection)
	Detection width	0% (empty), ~ 25%, ~ 50%, ~ 85%, ~ 100%
Paper feed size	AB series	A3, B4, A4, A4R, B5, B5R
	Inch series	11 × 17, 8.5 × 14, 8.5 × 11, 8.5 × 11R
Paper weight	56 ~ 105g/m^2, 14 ~ 28 lbs. (Same as the copier paper feed section.)	

A5 (5.5 × 8.5) size cannot be fed.

(2) Shipping form

Shipping size	AB series	A3
	Inch series	11 × 17
Plate display	AB series	A3
	Inch series	11 × 17 (USA: blank)

Size selection	Made by user.	
	AB series	A3, B4, A4, A4R
	Inch series	11 × 17, 11 × 14, 8.5 × 11, 8.5 × 11R

When the slide switch is set to EXTRA, the machine operates with the size set by the key operation.
(Sizes of 13" and B5/B5R in the AB series are set by the key operation.)

(3) Dehumidifying heater

Yes/No	No

(4) Shipping form

Shipping size	11 × 17
	A3

(5) Power source

Power source	Supplied from the copier. (DC 5V/DC 24V)

(6) Power consumption

Max. power consumption	About 24W
Stand-by	About 4.5W

(7) External view

External dimensions	600 (W) × 604 (D) × 403 (H) mm
Weight	About 25kg (excluding paper weight)
Box color	Frosty gray

C. Cassette module AR-CS1

(1) Paper feed capacity

Paper feed capacity	500 sheets

The capacity is based on 80g/m^2.
If the paper weight is 75g/m^2, 550 sheets can be loaded.

(2) Remaining quantity detection

Remaining paper quantity detection	Available (5-step sensor with empty detection) 0% (empty), ~ 25%, ~ 50%, ~ 85%, ~ 100%

(3) Paper size

Paper feed size	AB series	A3, B4, A4, A4R, B5, B5R
	Inch series	11 × 17, 8.5 × 14, 8.5 × 13, 8.5 × 11, 8.5 × 11R
Paper weight	56 ~ 105g/m^2 (Same as the copier paper feed section.)	

A5 (5.5 × 8.5) size cannot be fed.

(4) Size selection

Size selection	Made by the user (Slide switch system)	
Paper size	AB series	A3, B4, A4, A4R, B5, 8.5 × 11
	Inch series	11 × 17, 8.5 × 14, 8.5 × 13, 8.5 × 11, 8.5 × 11R, A4
Cassette removal	Possible by the user	

When the slide switch is set to EXTRA, the machine operates with the size set by the key operation.
(Sizes of 13" and B5R in the AB series are set by the key operation.)

(5) Shipping form

Shipping size	AB series	A3
	Inch series	11 × 17

(6) Power source

Power source	Supplied from the copier (DC 24V)

(7) Power consumption

Max. power consumption	About 3.5W
Stand-by	About 0.2W

(8) External view

Weight	About 2.6kg (Only cassette)
Box color	Frosty gray

D. Exclusive-use desk AR-DD1

(1) Storing space

Storing space	Stored upside or downside by the internal baffling plate.

(2) Open/close door

Open/close door	Yes

(3) Fixing method

Fixing adjuster	3 positions (2 in the front, 1 at the rear left)
Fixing method with the copier	Fixed with screws. (At right and the left, and two in the front)

(4) Anti-pressure capability

Anti-pressure capability	About 120kg
	Bearable with the full installation of the copier, the RADF, the duplex module, and the PWB's.

(5) External view

External dimensions	596 (W) × 576 (D) × 402.7 (H) mm
Weight	About 21kg
Box color	Frosty gray

E. Duplex module AR-DU1

∗ For the AR-285/335, this module is a standard provision.

(1) Installation

Installation	Made by the serviceman
Installing position	At the upper side of the copier's upper stage paper feed port.

(2) Necessary option

Additional memory	+8MB (16MB in total) required

∗ If no memory is added, the paper size is limited.

(3) Paper

Size	AB series	A3, B4, A4, A4R, B5, B5R, A5
	Inch series	11 × 17, 8.5 × 14, 8.5 × 13, 8.5 × 11, 8.5 × 11R, 7.25 × 10.5
Paper weight		56 ~ 105g/m^2 (Same as the copier paper feed section)

(4) Capacity

Capacity	1 sheet (single pass system)

(5) Power source

Power source	Supplied from the copier (DC 24V/DC 5V)

(6) Power consumption

Max. power consumption	About 25W
Stand-by	About 0.2W

(7) External view

External dimensions	515 (W) × 400 (D) × 120 (H) mm (When installed, it is stored in the copier body.)
Weight	About 5kg

F. Finisher AR-FN1

(1) Type

Copier-fitted type (detachable)

(2) Tray

① Number of trays	3	
② Type	Top (tray 1)	Normal tray
	Middle (tray 2)	Normal tray
	Bottom (tray 3)	Lift tray
③ Number of sheets loadable	Normal tray	500 (80 g/m^2)
	Lift tray	1500 (A4/11" × 8.5") 750 (A3/11" × 17") (80 g/m^2)

(3) Paper transfer

Center reference

(4) Storage

Face-up/face-down

(5) Discharge size

Face-up	Top	A3 ~ A6R/11 × 17 ~ 8.5 × 5.5, special paper
	Middle	A3 ~ A5/11 × 17 ~ 8.5 × 5.5
	Bottom	A3 ~ B5R/11 × 17 ~ 8.5 × 11R
Face-down	Top	A3 ~ B5/11 × 17 ~ 8.5 × 11R
	Middle	A3 ~ B5/11 × 17 ~ 8.5 × 11R
	Bottom	A3 ~ B5R/ 11 × 17 ~ 8.5 × 11R

(6) Paper weight

Face-up	Top	52 ~ 128 g/m^2	∗1
	Middle	56 ~ 105 g/m^2	
	Bottom	52 ~ 128 g/m^2	∗1
Face-down	56 ~ 105 g/m^2, exceeded.		

∗1: Paper of 200g/m^2 ~ 176m^2, can be used.
For paper weight exceeding 105g/m^2 in the face up mode, only the paper size of A4/8.5" × 11" or smaller can be used.

(7) Paper full detection

Top	Provided
Middle	Provided
Bottom	Provided

(8) Lift tray

Off-set	30 mm

(9) Staple unit

Paper discharge tray	Lift tray	
Storage	Face-up	
Number of sheets that can be stapled	50 sheets (80 g/m^2) 25 sheets when the size is over A4/LT.	
Paper size	AB series	A3, B4, A4, A4R, B5
	Inch series	11" × 17"/8.5" × 14"/ 8.5" × 13"/8.5" × 11"/ 8.5" × 11"R
Stapling reference	1 point (front)/ 1 point (far end)/ 2 points	
Needle feed system	Cartridge (5000 needles)	
Detection	No needle/no cartridge/stapler rotation	
Service life	more than 100 K	
Manual mode	None	

(10) Power supply

Supplied from copier (DC 24V, DC 5V)

(11) Power consumption

MAX 60W

(12) Dimensions

590 (W) × 560 (D) × 998 (H)

(13) Weight

About 50 kg

G. Finisher AR-FN2

(1) Type

Installation to copier body (Separate installation allowed)

(2) Tray section specifications

	Upper tray	Lower tray
Tray type	Normal tray	Lift tray
Capacity	250 sheets (A4/Letter, 80g/m^2)	750 sheets (A4/Letter, 80g/m^2)
Storing system	Face up	Face up/Face down
Paper exit size	A3 ~ A6R 11" × 17" ~ 5 1/2" × 8 1/2", 12" × 18"	A4, B5 8 1/2" × 11"
Paper weight	52 ~ 128g/m^2, 176g/m^2, 200g/m^2 (For 105g/m^2 or above, A4/Letter size or smaller)	56 ~ 128g/m^2
Paper full detection	None	Yes

(3) Lift tray section

Offset amount	15mm, A4 35mm: B5 24mm: 8.5 × 11

(4) Staple section

Storing system	Face up
Stapling system	Flat clinch
Stapling capacity	30 sheets (80g/m^2)
Applicable size	AB series: A4, B5 Inch series: 8 1/2 × 11
Alignment	Max. shift width: 1mm
Stapling reference	One position (front)
Staple supply system	Cartridge system (5000 pcs.)
Staple	Common with AR-SS1, SF-S54
Detection	Detection of no staple/no cartridge/no stapler

(5) External dimensions

457mm (W) × 518mm (D) × 820mm (H)
552mm (W) × 518mm (D) × 866mm (H)(with the upper tray extended)

(6) Weight

22Kg

(7) Power

Supplied from the copier body.

H. 3-tray finisher AR-FN1N

(1) Type

Type	Installed to the copier body. (Detachable)	
Tray type	Top stage	Normal tray
	Middle stage	Normal tray
	Bottom stage	Lift-up tray

(2) Tray capacity

Capacity	Top stage	500 sheets
	Middle stage	500 sheets
	Bottom stage	1,500 sheets

A4/Letter size, 80g/m^2

(3) Paper transport/paper exit

Paper transport	Center reference
Paper exit system	Face up/Face down
Paper exit direction	Discharged from the left side of the document.

(4) Paper size

Paper exit size	Top stage	Face up	A3 ~ A6R, 11 × 17 ~ 5.5 × 8.5, Special paper
		Face down	A3 ~ B5, 11 × 17 ~ 8.5 × 11R
	Middle stage	Face up	A3 ~ A5, 11 × 17 ~ 5.5 × 8.5
		Face down	A3 ~ B5, 11 × 17 ~ 8.5 × 11R
	Bottom stage	Face up	A3 ~ B5R, 11 × 17 ~ 8.5 × 11R
		Face down	A3 ~ B5R, 11 × 17 ~ 8.5 × 11R
Paper weight	Top stage	Face up	56 ~ 128g/m^2, 176g/m^2, 200g/m^2
		Face down	56 ~ 105g/m^2
	Middle stage	Face up	56 ~ 105g/m^2
		Face down	56 ~ 105g/m^2
	Bottom stage	Face up	56 ~ 128g/m^2, 176g/m^2, 200g/m^2
		Face down	56 ~ 105g/m^2

For paper weight of greater than 105g/m^2, A4/8.5 × 11 or less.

(5) Paper full detection

Paper full detection	Top stage	Full detection available
	Middle stage	Full detection available
	Bottom stage	5-step sensor with full detection (0% ~ , 25% ~ , 50% ~ , 75% ~ , 100% (full))

(6) Offset

Tray available	Bottom tray
Offset amount	25mm

(7) Power source

Power source	Supplied from the copier (DC 24V/DC 25)

(8) Power consumption

Max. power consumption	About 60W

(9) External view

Dimensions	590 (W) × 560 (D) × 998 (H)
Box color	Frosty gray
Weight	About 45kg

(10) Staple functions

Stable available	Bottom stage tray only	
Paper exit system	Face up only	
Stapling capacity	50 sheets (60g/m^2) (25 sheets for sizes greater than A4/8.5 × 11)	
Sizes available for stapling	AB series	A3, B4, A4, A4R, B5, B5R
	Inch series	11 × 17, 8.5 × 14, 8.5 × 13, 8.5 × 11, 8.5 × 11R
Alignment (when stapling)	Max. shift: within 1mm	
Stapling reference	One position (Left rear), One position (Left front), 2 positions (left side)	
Stapler supply	Cartridge (5,000 pcs.)	
Stapler	SF-SC11 (The staple cartridge case is supplied as a service part.)	
Detection	Staple empty detection, no cartridge detection	
Manual staple mode	Not available	

I. Dual tray output unit AR-TR1

(1) Capacity

No. of bins	2 trays	
Capacity	Upper stage	250 sheets
	Lower stage	100 sheets

(2) Paper transport/paper exit

Paper transport	Center reference
Storing system	Face up

(3) Paper exit tray

Tray	Mode	Paper
Upper stage	Copy, printer	A3 ~ A6R (11" × 17" ~ 8.5 × 5.5")
Lower stage	Printer, interruption copy	A3 ~ A5 (11" × 17" ~ 8.5 × 5.5")

(4) Power

Supplied by the copier (DC 24V)

(5) Weight

3.3 kg

J. AR-PB2

(1) General Specification

PS Specification

Platform		IBM PC/AT (or compatible)
Support OS (Printer Drivers)	Custom and PPD	Windows 3.1/WfW3.11 (No PPD) Windows 95/98 Windows NT 4.0
PDL Emulation		PCL5e-compatible PostScript Level 2-Compatible Hex Dump
CPU		R4700 (64bit RISC / 150MHz)
Memory	Standard	16MB
	Maximum	80MB (32MB SIMM x 2 + 16MB)
	Slot	2 Slots (16MB / 32MB SIMM can be attached)
Resident Fonts	For PS	Type1: 35 fonts (Latin fonts)
	For PCL	Intellifont : 35 fonts TrueType : 10 fonts Line Printer Stroke Font
Interface		IEEE1284 parallel port: 1 port Port supports Compatible mode (with PnP on Windows95/98).
Extend Interface		1 Network slot on printer board. NIC can be attached here.
NIC Support		DPI1.10Base-T/2 (AR-NC1D)
Port Selection		Automatic Switch or Fix to each port
Emulation Switching		Automatic Switch or Fix to each emulation
PnP Support		Support on Windows95/98

[4] CONSUMABLE PARTS

1. Consumable Parts List

A. USA

No.	ITEM	CONTENTS		LIFE	MODEL NAME	REMARKS
1	Drum	OPC Drum	×1	180K	AR-400DR	
2	Developer (Black)	Developer (800g)	×10	90K (×10)	AR-400MD	AR-400MD = (AR-400ND) × 10
3	Toner (Black)	Toner Cartridge (700g)	×10	22K (×1)	AR-400MT	AR-400MT = (AR-400NT) × 10
4	Upper Heat Roller Kit	Upper Heat Roller Fusing Separation Pawl (upper) Heat Roller Gear	×1 ×4 ×1	180K	AR-330UH	Replacement of fusing separation pawl for every 80 K should be done using those supplied separately.
5	Lower Heat Roller Kit	Lower Heat Roller Fusing Separation Pawl (lower)	×1 ×2	180K	AR-330LH	Replacement of fusing separation pawl for every 80 K should be done using those supplied separately.
6	90K Maintenance Kit	Cleaner Blade Charging Plate Unit Drum Separation Unit	×1 ×1 ×1	90K	AR-400KA	
7	Cleaner Blade	Cleaner Blade	×10	90K (×10)	AR-330CB	AR-330CB= (AR-330BL) ×10
8	Staple Cartridge	Staple Cartridge (SF-SC11)	×3	5K staples ×3	SF-SC11	Cartridge for AR-FN1 Common with S55,S55 N
9	Staple Cartridge	Staple Cartridge (SF-SC12)	×3	5K staples ×3	SF-LS12	Cartridge for AR-FN2 Common with S54 SF-LS12= (SF-SC12) ×3

Note: Maintenance parts other than mentioned above must be ordered through the parts department using the proper part number.

B. Canada

No.	ITEM	CONTENTS		LIFE	MODEL NAME	REMARKS
1	Drum	OPC Drum	×1	180K	AR-400DR	
2	Developer (Black)	Developer (800g)	×10	80K (×10)	AR-400MD	AR-400MD = (AR-400ND) × 10
3	Toner (Black)	Toner Cartridge (700g)	×10	22K (×1)	AR-400MT	AR-400MT = (AR-400NT) × 10
4	90K PM Kit	Cleaner Blade Charging Plate Unit Waste Toner Bottle Fusing Separation Pawl (upper) Fusing Separation Pawl (lower) Screen Grid Drum Separation Unit	×1 ×1 ×3 ×4 ×2 ×1 ×1	90K	AR-400KA	
5	180K PM Kit	Upper Heat Roller Lower Heat Roller Toner Receiving Seal DV Seal Heat Roller Gear	×1 ×1 ×1 ×1 ×1	180K	AR-400KB	
6	Staple Cartridge	Staple Cartridge (SF-SC11)	×3	5K staples ×3	SF-SC11	Cartridge for AR-FN1 Common with S55,S55 N
7	Staple Cartridge	Staple Cartridge (SF-SC12)	×3	5K staples ×3	SF-LS12	Cartridge for AR-FN2 Common with S54 SF-LS12= (SF-SC12) ×3
8	Cleaner Blade	Cleaner Blade	×10	90K (×10)	AR-330CB	AR-330CB= (AR-330BL) ×10
9	Upper Heat Roller	Upper Heat Roller	×1	180K	AR-400HU	
10	Fusing Separation Pawl (upper)	Fusing Separation Pawl (upper) ×4	×10	90K (×10)	SF-216UP	SF216UP=SF-216TP (incl.4 pawls) ×10
11	Heat Roller Gear	Heat Roller Gear	×10	180K (×10)	SF-216HG	SF216HG= (SF216JG) ×10
12	Lower Heat Roller	Lower Heat Roller	×1	180K	AR-330HR	
13	Fusing Separation Pawl (lower)	Fusing Separation Pawl (lower) ×2	×10	90K (×10)	SF-240LP	SF240LP=SF-240MP (incl.2 pawls) ×10
14	Drum Separation Pawl	Drum Separation Pawl ×2	×10	90K (×10)	SF-240DP	SF240DP=SF-240EP (incl.2 pawls) ×10
15	Screen Grid	Screen Grid	×10	90K (×10)	AR-330SU	AR-330SU= (AR-330TU) ×10
16	Charging Plate	Charging Plate	×10	90K (×10)	AR-330PU	AR-330PU= (AR-330NU) ×10
17	Waste Toner Bottle	Waste Toner Bottle	×1		AR-330TB	
18	Busing	Busing ×2	×10	180K (×10)	SF-240BU	SF-240BU= (SF-240DU) ×10
19	Ozone Filter	Ozone Filter	×10	90K (×10)	AR-330FL	AR-330FL= (AR-330JL) ×10
20	Copy Lamp	Copy Lamp	×10		AR-330CL	AR-330CL= (AR-330DL) ×10
21	MC Unit	MC Unit	×10		AR-330MC	AR-330MC= (AR-330NC) ×10

Note: Maintenance parts other than mentioned above must be ordered through the parts department using the proper part number.

C. Europe / U.K. / Australia / New Zealand

No.	ITEM	CONTENTS		LIFE	MODEL NAME	REMARKS
1	Drum	OPC Drum	×1	180K	AR-400DM	
2	Developer (Black)	Developer (800g)	×10	90K (×10)	AR-400LD	AR-400LD = (AR-400DV) × 10
3	Toner (Black)	Toner Cartridge (700g)	×10	22K (×1)	AR-400LT	AR-400LT = (AR-400T) × 10
4	90K PM Kit	Cleaner Blade Charging Plate Unit Waste Toner Bottle Fusing Separation Pawl (upper) Fusing Separation Pawl (lower) Screen Grid Drum Separation Unit	×1 ×1 ×3 ×4 ×2 ×1 ×1	90K	AR-400KA	
5	180K PM Kit	Upper Heat Roller Lower Heat Roller Toner Receiving Seal DV Seal Heat Roller Gear	×1 ×1 ×1 ×1 ×1	180K	AR-400KB	
6	Staple Cartridge	Staple Cartridge (SF-SC11)	×3	5K staples ×3	SF-SC11	Cartridge for AR-FN1 Common with S55,S55 N
7	Staple Cartridge	Staple Cartridge (SF-SC12)	×3	5K staples ×3	SF-LS12	Cartridge for AR-FN2 Common with S54 SF-LS12= (SF-SC12) ×3
8	Cleaner Blade	Cleaner Blade	×10	90K (×10)	AR-330CB	AR-330CB= (AR-330BL) ×10
9	Upper Heat Roller	Upper Heat Roller	×1	180K	AR-400HU	
10	Fusing Separation Pawl (upper)	Fusing Separation Pawl (upper) ×4	×10	90K (×10)	SF-216UP	SF216UP=SF-216TP (incl.4 pawls) ×10
11	Heat Roller Gear	Heat Roller Gear	×10	180K (×10)	SF-216HG	SF216HG= (SF216JG) ×10
12	Lower Heat Roller	Lower Heat Roller	×1	180K	AR-330HR	
13	Fusing Separation Pawl (upper)	Fusing Separation Pawl (lower) ×2	×10	90K (×10)	SF-240LP	SF240LP=SF-240MP (incl.2 pawls) ×10
14	Drum Separation Pawl	Drum Separation Pawl ×2	×10	90K (×10)	SF-240DP	SF240DP=SF-240EP (incl.2 pawls) ×10
15	Screen Grid	Screen Grid	×10	90K (×10)	AR-330SU	AR-330SU= (AR-330TU) ×10
16	Charging Plate	Charging Plate	×10	90K (×10)	AR-330PU	AR-330PU= (AR-330NU) ×10
17	Waste Toner Bottle	Waste Toner Bottle	×1		AR-330TB	
18	Busing	Busing ×2	×10	180K (×10)	SF-240BU	SF-240BU= (SF-240DU) ×10
19	Ozone Filter	Ozone Filter	×10	90K (×10)	AR-330FL	AR-330FL= (AR-330JL) ×10
20	Copy Lamp	Copy Lamp	×10		AR-330CL	AR-330CL= (AR-330DL) ×10
21	MC Unit	MC Unit	×10		AR-330MC	AR-330MC= (AR-330NC) ×10

Note: Maintenance parts other than mentioned above must be ordered through the parts department using the proper part number.

D. Asia / Middle & South America

No.	ITEM	CONTENTS		LIFE	MODEL NAME	REMARKS
1	Drum	OPC Drum	×1	180K	AR-400DM	
2	Developer (Black)	Developer (800g)	×10	90K (×10)	AR-400CD	AR-400CD = (AR-400SD) × 10
3	Toner (Black)	Toner Cartridge (700g)	×10	22K (×1)	AR-400CT	AR-400CT = (AR-400ST) × 10
4	90K PM Kit	Cleaner Blade Charging Plate Unit Waste Toner Bottle Fusing Separation Pawl (upper) Fusing Separation Pawl (lower) Screen Grid Drum Separation Unit	×1 ×1 ×3 ×4 ×2 ×1 ×1	90K	AR-400KA	
5	180K PM Kit	Upper Heat Roller Lower Heat Roller Toner Receiving Seal DV Seal Heat Roller Gear	×1 ×1 ×1 ×1 ×1	180K	AR-400KB	
6	Staple Cartridge	Staple Cartridge (SF-SC11)	×3	5K staples ×3	SF-SC11	Cartridge for AR-FN1 Common with S55,S55 N
7	Staple Cartridge	Staple Cartridge (SF-SC12)	×3	5K staples ×3	SF-LS12	Cartridge for AR-FN2 Common with S54 SF-LS12= (SF-SC12) ×3
8	Cleaner Blade	Cleaner Blade	×10	90K (×10)	AR-330CB	AR-330CB= (AR-330BL) ×10
9	Upper Heat Roller	Upper Heat Roller	×1	180K	AR-400HU	
10	Fusing Separation Pawl (upper)	Fusing Separation Pawl (upper) ×4	×10	90K (×10)	SF-216UP	SF216UP=SF-216TP (incl.4 pawls) ×10
11	Heat Roller Gear	Heat Roller Gear	×10	180K (×10)	SF-216HG	SF216HG= (SF216JG) ×10
12	Lower Heat Roller	Lower Heat Roller	×1	180K	AR-330HR	
13	Fusing Separation Pawl (lower)	Fusing Separation Pawl (lower) ×2	×10	90K (×10)	SF-240LP	SF240LP=SF-240MP (incl.2 pawls) ×10
14	Drum Separation Pawl	Drum Separation Pawl ×2	×10	90K (×10)	SF-240DP	SF240DP=SF-240EP (incl.2 pawls) ×10
15	Screen Grid	Screen Grid	×10	90K (×10)	AR-330SU	AR-330SU= (AR-330TU) ×10
16	Charging Plate	Charging Plate	×10	90K (×10)	AR-330PU	AR-330PU= (AR-330NU) ×10
17	Waste Toner Bottle	Waste Toner Bottle	×1		AR-330TB	
18	Busing	Busing ×2	×10	180K (×10)	SF-240BU	SF-240BU= (SF-240DU) ×10
19	Ozone Filter	Ozone Filter	×10	90K (×10)	AR-330FL	AR-330FL= (AR-330JL) ×10
20	Copy Lamp	Copy Lamp	×10		AR-330CL	AR-330CL= (AR-330DL) ×10
21	MC Unit	MC Unit	×10		AR-330MC	AR-330MC= (AR-330NC) ×10

Note: Maintenance parts other than mentioned above must be ordered through the parts department using the proper part number.

E. Middle East / Africa

No.	ITEM	CONTENTS		LIFE	MODEL NAME	REMARKS
1	Drum	OPC Drum	×1	180K	AR-400DM	
2	Developer (Black)	Developer (800g)	×10	90K (×10)	AR-400LD	AR-400LD = (AR-400DV) × 10
3	Toner (Black)	Toner Cartridge (700g)	×10	22K (×1)	AR-400LT	AR-400LT = (AR-400T) × 10
4	90K PM Kit	Cleaner Blade Charging Plate Unit Waste Toner Bottle Fusing Separation Pawl (upper) Fusing Separation Pawl (lower) Screen Grid Drum Separation Unit	×1 ×1 ×3 ×4 ×2 ×1 ×1	90K	AR-400KA	
5	180K PM Kit	Upper Heat Roller Lower Heat Roller Toner Receiving Seal DV Seal Heat Roller Gear	×1 ×1 ×1 ×1 ×1	180K	AR-400KB	
6	Staple Cartridge	Staple Cartridge (SF-SC11)	×3	5K staples ×3	SF-SC11	Cartridge for AR-FN1 Common with S55,S55 N
7	Staple Cartridge	Staple Cartridge (SF-SC12)	×3	5K staples ×3	SF-LS12	Cartridge for AR-FN2 Common with S54 SF-LS12= (SF-SC12) ×3
8	Cleaner Blade	Cleaner Blade	×10	90K (×10)	AR-330CB	AR-330CB= (AR-330BL) ×10
9	Upper Heat Roller	Upper Heat Roller	×1	180K	AR-400HU	
10	Fusing Separation Pawl (upper)	Fusing Separation Pawl (upper) ×4	×10	90K (×10)	SF-216UP	SF216UP=SF-216TP (incl.4 pawls) ×10
11	Heat Roller Gear	Heat Roller Gear	×10	180K (×10)	SF-216HG	SF216HG= (SF216JG) ×10
12	Lower Heat Roller	Lower Heat Roller	×1	180K	AR-330HR	
13	Fusing Separation Pawl (lower)	Fusing Separation Pawl (lower) ×2	×10	90K (×10)	SF-240LP	SF240LP=SF-240MP (incl.2 pawls) ×10
14	Drum Separation Pawl	Drum Separation Pawl ×2	×10	90K (×10)	SF-240DP	SF240DP=SF-240EP (incl.2 pawls) ×10
15	Screen Grid	Screen Grid	×10	90K (×10)	AR-330SU	AR-330SU= (AR-330TU) ×10
16	Charging Plate	Charging Plate	×10	90K (×10)	AR-330PU	AR-330PU= (AR-330NU) ×10
17	Waste Toner Bottle	Waste Toner Bottle	×1		AR-330TB	
18	Busing	Busing ×2	×10	180K (×10)	SF-240BU	SF-240BU= (SF-240DU) ×10
19	Ozone Filter	Ozone Filter	×10	90K (×10)	AR-330FL	AR-330FL= (AR-330JL) ×10
20	Copy Lamp	Copy Lamp	×10		AR-330CL	AR-330CL= (AR-330DL) ×10
21	MC Unit	MC Unit	×10		AR-330MC	AR-330MC= (AR-330NC) ×10

Note: Maintenance parts other than mentioned above must be ordered through the parts department using the proper part number.

2. Copy paper

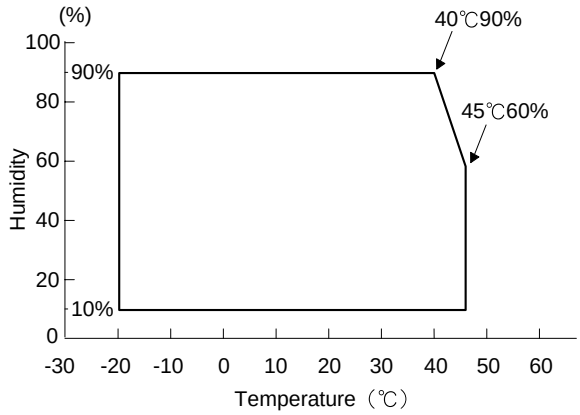
The following conditions for copy quality and transportability of PPC paper must be satisfied. The values are at temperature of 20 ±1˚C and 65 ±2% RH.

Item	Standard
Weight	56 ~ 80g/m^2
Smoothness	Face: 20 sec or above (BEKK method) Back: 20 sec or above (BEKK method)
Rigidness	Length 17cm or above, width 13cm or above (CLARK method)
Thickness	75 ~ 110μ
Dimensions	Standard dimensions ± 1mm (5/128") B4 (257 ±1 × 364±1mm) B5 (182 ±1 × 257±1mm) B6 (128 ±1 × 182±1mm) A3 (297 ±1 × 420±1mm) A4 (210 ±1 × 297±1mm) A5 (148 ±1 × 210±1mm) A6 (105 ±1 × 148±1mm) 11" ±5/128 × 17" ±5/128 inch 8.5" ±5/128 × 14" ±5/128 inch 8.5" ±5/128 × 11" ±5/128 inch 5.5" ±5/128 × 8.5" ±5/128 inch 8.5" ±5/128 × 13" ±5/128 inch

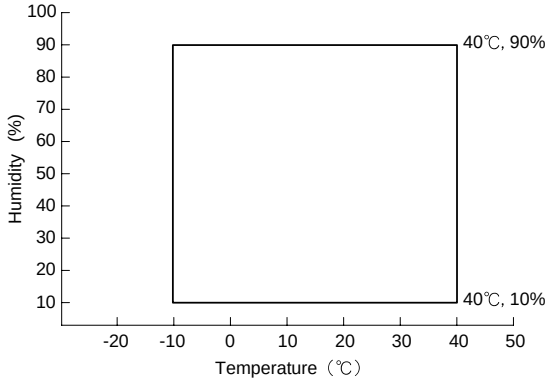
3. Environment conditions

A. Transport conditions

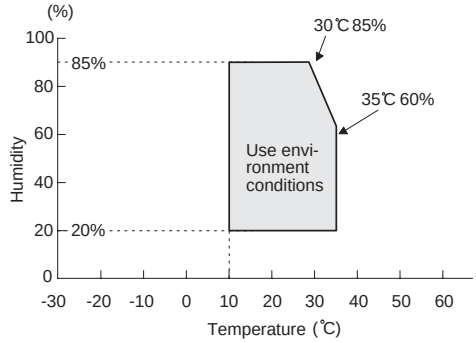
1) Transport condition



2) Storage condition (packed conditions)



B. Use conditions

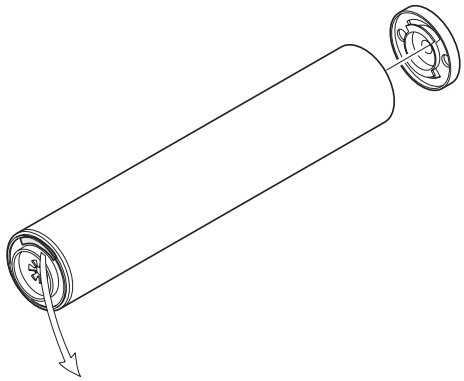


C. Life (packed conditions)

Photoconductor drum (36 months from the production month)
Developer, toner (24 months from the production month)

4. Production number identification

A. Photoconductor drum



<TYPE A>

①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① Numeric figure
Indicates the sensitivity of the photo conductor.

② Alphabet
Indicates the model code, "D" for this model.

③ Numeric figure
Indicates the last digit of the production year.

④ Numeric figure or X, Y, Z
Indicates the production month.
X means October, Y November, and Z December.

⑤ ⑥ Numeric figure
Indicates the production day

⑦ Numeric figure or X, Y, Z
Indicates the packing month.
X means October, Y November, and Z December.

⑧ ⑨ Numeric figure
Indicates the packing day.

⑩ Alphabet
Indicates the division of the production factory.

<TYPE B>

									⑪
①	②	③	④	⑤	⑥	⑦	⑧	⑨	⑩

① Numeral
This function: "2"

② ③ Alphabet
Shows the applicable model. PC for this model.

④ Numeral
Shows the end digit of the production year.

⑤ Numeral or X, Y, Z
Shows the production month.
X stands for October, Y November, and Z December.

⑥ Numeral
Shows the production lot.

⑦ Numeral
Shows the distinction of sub lot.

⑧ Numeral or X, Y, Z
Shows the packing month.
X stands for October, Y November, and Z December.

⑨ ⑩ Numeral
Shows the packing day.

⑪ Numeral or alphabet
Shows the product name of the drum.

B. Developer/Toner

AR-335

①	②	③	④	⑤	⑥	-	⑦

①, ②, ③ Numeral
Shows the production lot.

④ Numeral
Shows the distiction of sub lot.

AR-405

<Developer>

①	②	③	④	⑤	⑥	⑦	⑧

① Alphabet
Identifies the manufacturing factory.

② Figure
Indicates the end digit of the year.

③, ④ Figures
Indicates the production month.

⑤, ⑥, ⑦, ⑧ Figures
Manufacturing factory management number

<Toner>

①	②	③	④	⑤	⑥	⑦	⑧

① End digit of the year.

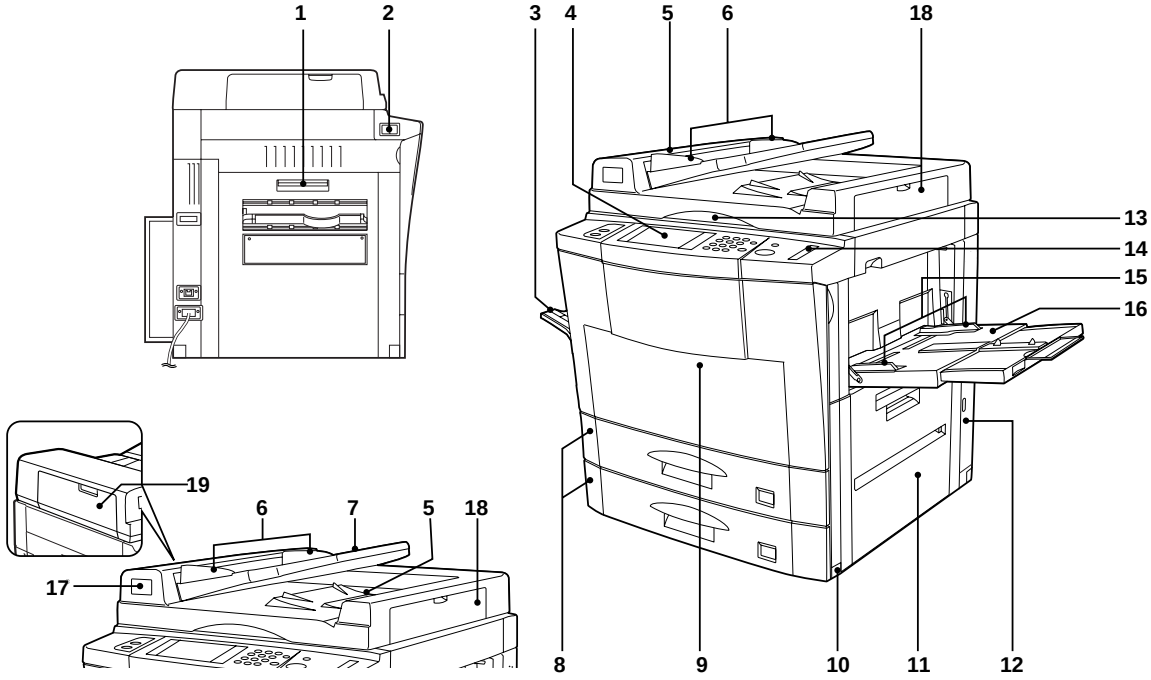
② A (Means 100,000.)
B (Means 200,000.)
C (Means 300,000.)
} Serial No. of one month production

③, ④, ⑤, ⑥, ⑦ Serial No. } Serial No. of one month production

⑧ Production month

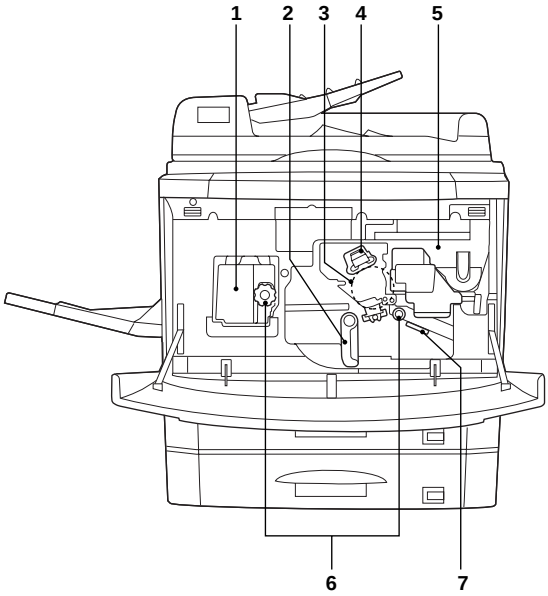
EXTERNAL VIEW AND INTERNAL STRUCTURE (AR-405)

A. Exterior



No.	Name	No.	Name	No.	Name
1	Exit area cover	2	Power switch	3	Exit tray (optional)
4	Operation panel	5	RADF exit area	6	Original guides
7	Document feeder tray	8	Paper trays	9	Front cover
10	Handles	11	Right side cover	12	Toner collecting container cover
13	Document glass	14	Paper clip tray	15	Bypass tray paper guides
16	Bypass tray	17	Document feeder indicators	18	RADF exit roller cover
19	RADF feeding roller cover				

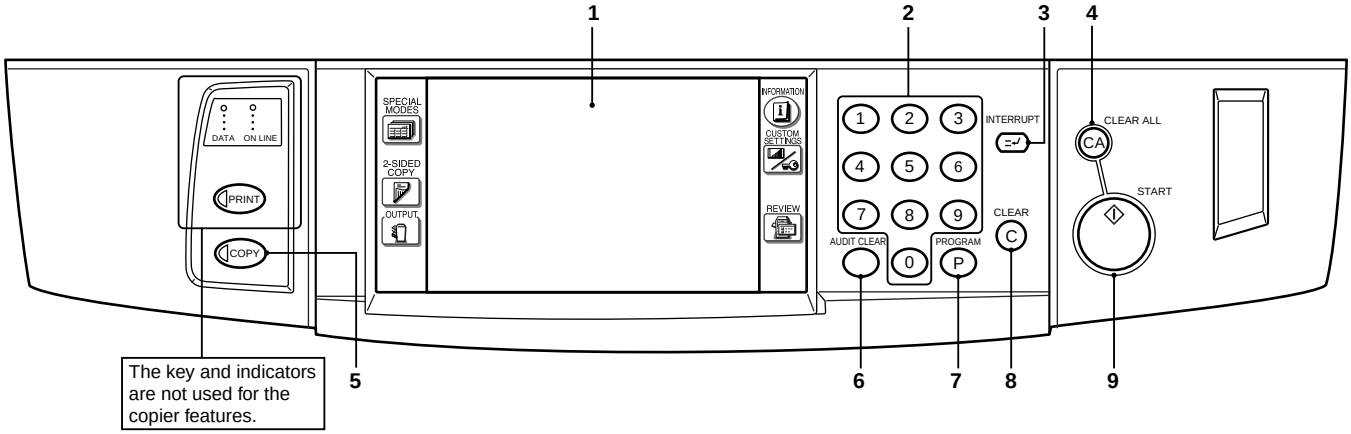
B. Interior



No.	Name
1	Fusing unit
2	Transport lever
3	Photoconductive drum
4	Corona unit
5	Toner hopper
6	Roller rotating knobs
7	Paper guide

C. Operation Panel

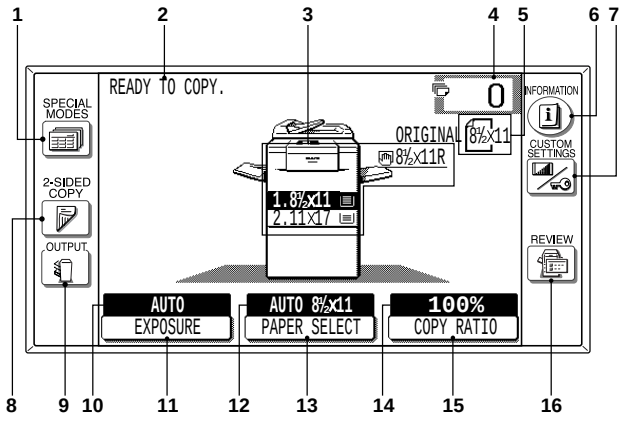
(1) Key position



No.	Name	No.	Name
1	LCD touch panel	2	10-key pad
3	INTERRUPT key and indicator	4	CLEAR ALL key
5	COPY key	6	AUDIT CLEAR key
7	PROGRAM key	8	CLEAR key
9	START key and indicator		

(2) Touch Panel

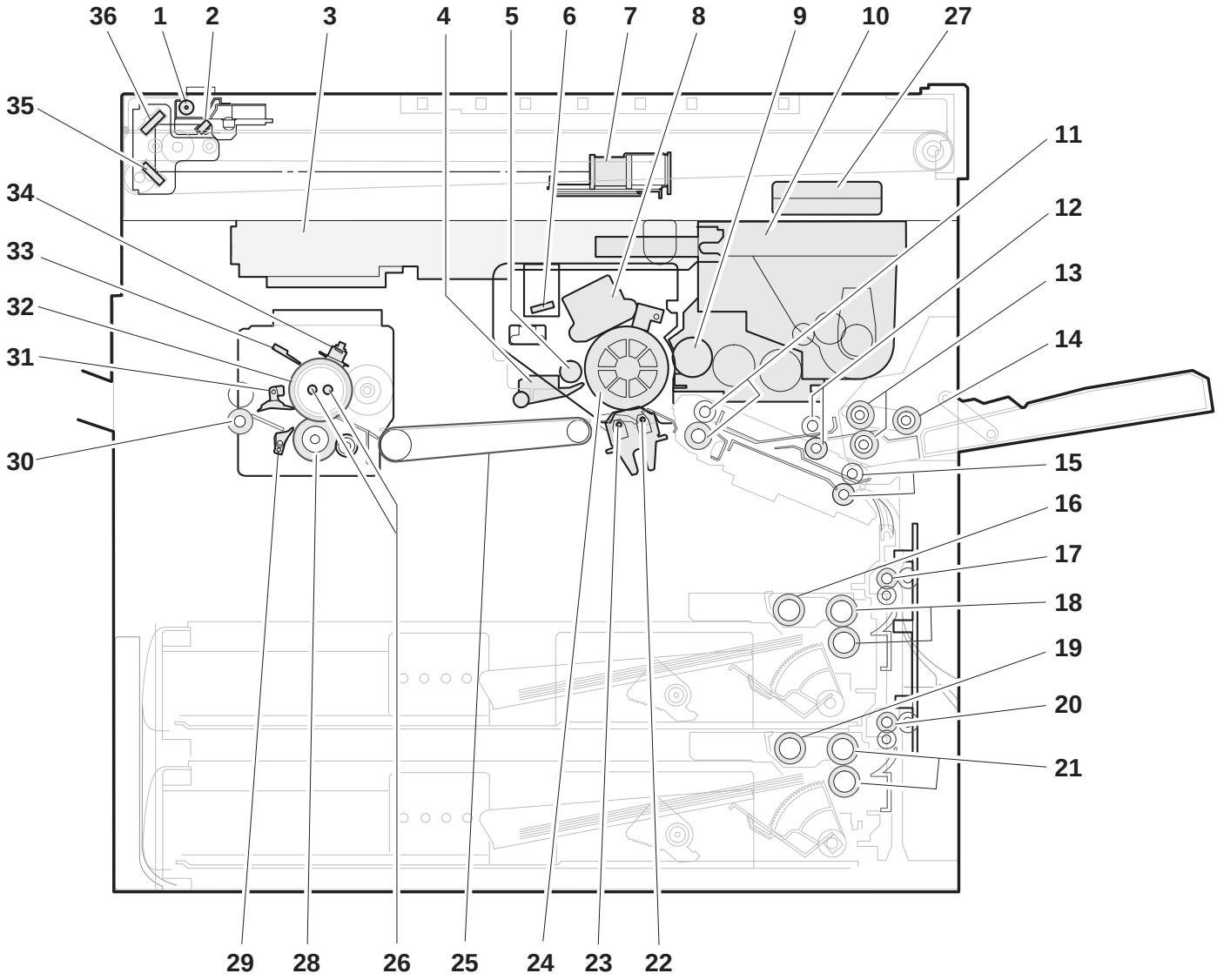
a. Copy mode



No.	Name
1	SPECIAL MODES key
2	Message display
3	Paper size display
4	Copy quantity display
5	Original size display
6	INFORMATION key
7	CUSTOM SETTINGS key
8	2-SIDED COPY key
9	OUTPUT key
10	EXPOSURE display
11	EXPOSURE key
12	PAPER SELECT display
13	PAPER SELECT key
14	COPY RATIO display
15	COPY RATIO key
16	REVIEW key

2. Copier body

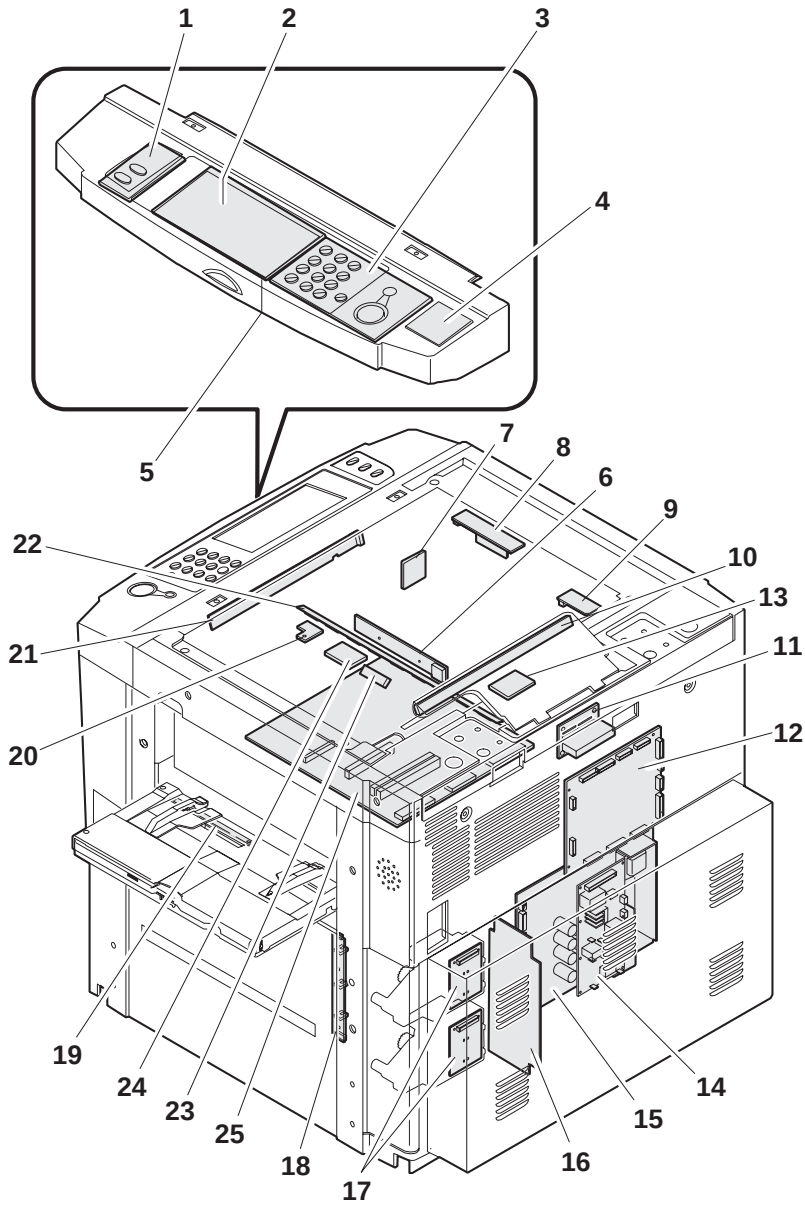
A. Major parts



No.	Name
1	Copy lamp
2	No. 1 mirror
3	Laser scanning unit
4	Drum separation pawl
5	Waste toner collecting screw
6	Discharge lamp
7	CCD unit
8	Main charger
9	Developing unit magnet roller
10	Toner hopper
11	Resist roller
12	Paper transport roller
13	Manual paper feed tray separation roller
14	Manual paper feed tray paper feed roller
15	Paper transport roller
16	Upper tray paper feed roller
17	Paper transport roller 3
18	Upper tray paper separation roller

No.	Name
19	Lower tray paper feed roller
20	Paper transport roller 4
21	Lower tray paper separation roller
22	Transfer charger
23	Separation charger
24	OPC drum
25	Suction belt
26	Fusing heater lamp (Out side/inside)
27	Hard disk
28	Lower fusing roller
29	Lower fusing roller separation pawl
30	Paper exit roller 1
31	Upper fusing roller separation pawl
32	Upper fusing roller
33	Thermistor (Outside/inside)
34	Thermostat
35	No. 3 mirror
36	No. 2 mirror

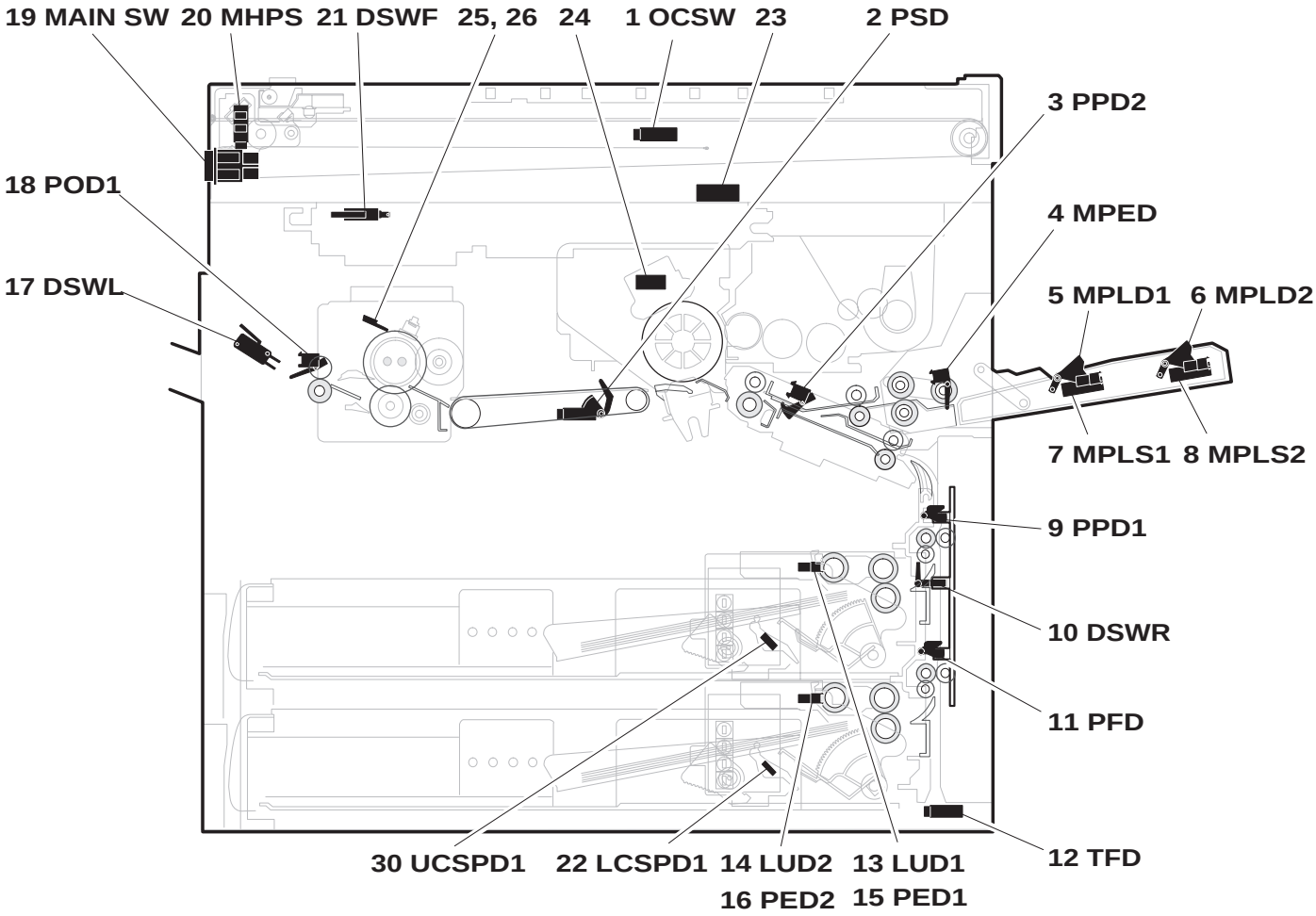
B. PWB location



No.	Name	Function, operation
1	Operation key PWB L	Key input
2	LCD unit	Operation input, machine state display
3	Operation key PWB R	Key input
4	Invertor PWB	LCD backlight control
5	Operation control PWB	Operation input, display control
6	CCD PWB	Document image input
7	Fusing interface PWB	Fusing unit, PCU interface
8	Copy lamp lighting PWB	Copy lamp lighting control
9	Copy lamp lighting interface PWB	Copy lamp, PCU interface
10	Document size detecting PWB (Light emitting side)	Document size detection
11	Scanner driver PWB	Optical system scanner unit drive
12	PCU PWB	Overall control of the copier and options
13	Interface PWB	

No.	Name	Function, operation
14	AC power PWB	AC power input
15	DC power PWB	DC power supply
16	High voltage PWB	Process high voltage, bias voltage supply
17	Lift-up motor PWB	Paper tray bottom plate lift up
18	Paper transport sensor PWB	Paper transport detection
19	Multi feed tray paper size detection PWB	Document size detection
20	Process thermistor PWB	Temperature detection in the process unit
21	Document size detecting PWB (Light receiving side)	Document size detection
22	Discharge lamp PWB	OPC drum discharge
23	Drum marking sensor PWB	
24	Process control PWB	
25	ICU PWB	

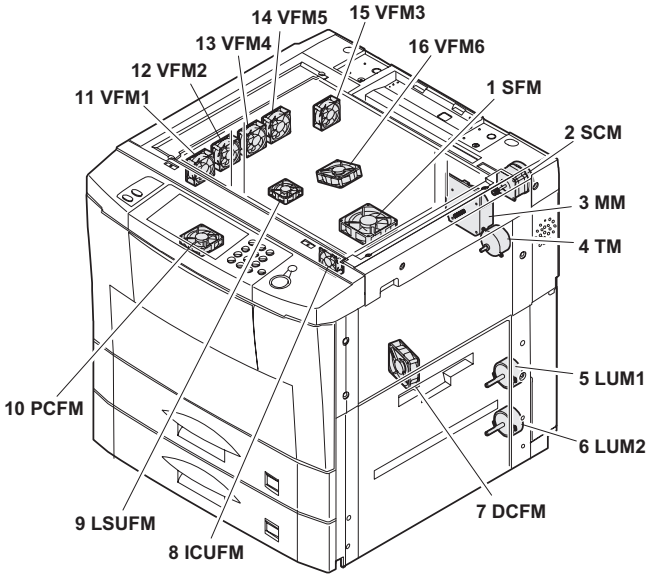
C. Sensor location



No.	Signal name	Function, operation
1	OCSW	Document cover open/close detection
2	PSD	Separation detection
3	PPD2	PS paper detection
4	MPED	Manual paper feed paper empty detection
5	MPLD1	Manual paper feed paper length detection 1
6	MPLD2	Manual paper feed paper length detection 2
7	MPLS1	Manual paper fed tray pull-out detection 1
8	MPLS2	Manual paper feed tray pull-out detection 2
9	PPD1	Paper transport detection 1
10	DSWR	Right door open/close detection
11	PFD	Paper transport detection 1
12	TFD	Waste toner full warning detection
13	LUD1	Upper cassette upper limit detection
14	LUD2	Lower cassette upper limit detection
15	PED1	Upper cassette paper empty detection
16	PED2	Lower cassette paper empty detection
17	DSWL	Left upper door open/close detection
18	POD1	Paper exit detection (after fusing)
19	MAIN SW	Power switch

No.	Signal name	Function, operation
20	MHPS	No. 1 mirror home position detection
21	DSWF	Front cover open/close detection
22	LCSPD1	No. 2 tray paper remaining detection 1
23	Operation PWB thermistor	Operation PWB peripheral temperature detection
24	Process section thermistor	Process section peripheral temperature detection
25	Fusing section thermistor (Center)	Heat roller temperature detection
26	Fusing section thermistor (Sides)	Heat roller temperature detection

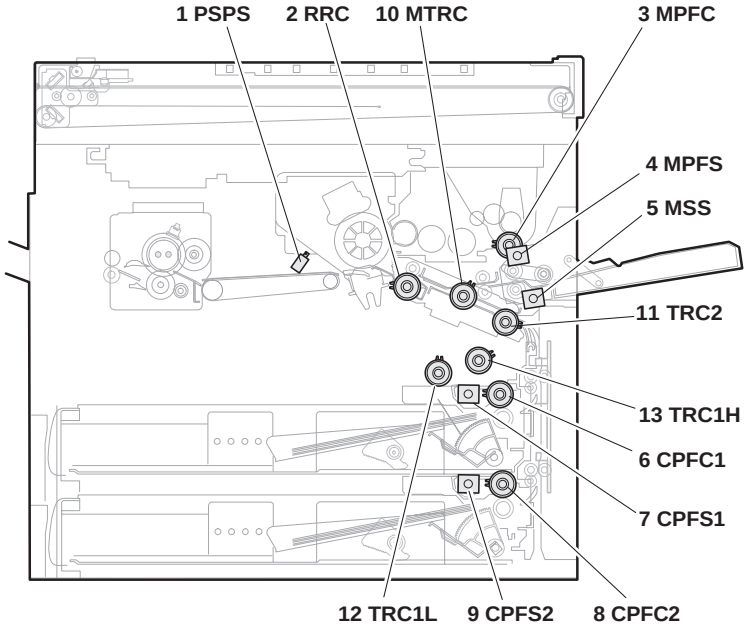
D. Motor location



No.	Abbreviation	Name	Type
1	SFM	Suction fan motor	Fan motor
2	SCM	Scanner motor	Stepping motor
3	MM	Main motor	Brushless motor
4	TM	Toner motor	Synchronous motor
5	LUM1	Upper stage lift-up motor	Synchronous motor
6	LUM2	Lower stage lift-up motor	Synchronous motor
7	DCFM	Power fan motor	Fan motor

No.	Abbreviation	Name	Type
8	ICUFM	ICU fan motor	Fan motor
9	LSUFM	LSU fan motor	Fan motor
10	PCFM	Process fan motor	Fan motor
11	VFM1	Exhaust fan motor 1	Fan motor
12	VFM2	Exhaust fan motor 2	Fan motor
13	VFM4	Exhaust fan motor 4	Fan motor
14	VFM5	Exhaust fan motor 5	Fan motor
15	VFM3	Exhaust fan motor 3	Fan motor
16	VFM6	Exhaust fan motor 6	Fan motor

F. Clutch solenoid

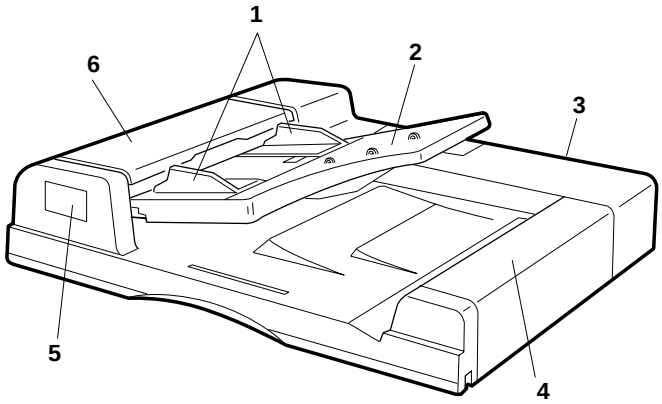


No.	Abbreviation	Function, operation
1	PSPS	Paper separation solenoid
2	RRC	Resist roller clutch
3	MPFC	Manual paper feed clutch
4	MPFS	Manual paper feed solenoid
5	MSS	Manual paper feed shutter solenoid
6	CPFC1	Upper stage cassette paper feed clutch
7	CPFS1	Upper cassette paper feed solenoid
8	CPFC2	Lower cassette paper feed clutch

No.	Abbreviation	Function, operation
9	CPFS2	Lower cassette paper feed solenoid
10	MTRC	Transport roller clutch (low)
11	TRC2	Transport roller clutch (high)
12	TRC1L	Vertical transport roller/paper feed roller low clutch
13	TRC1H	Vertical transport roller/paper feed roller high clutch

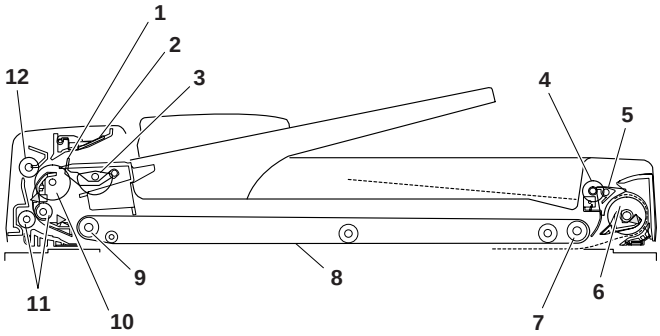
RADF (AR-RF2)

A. External fitting



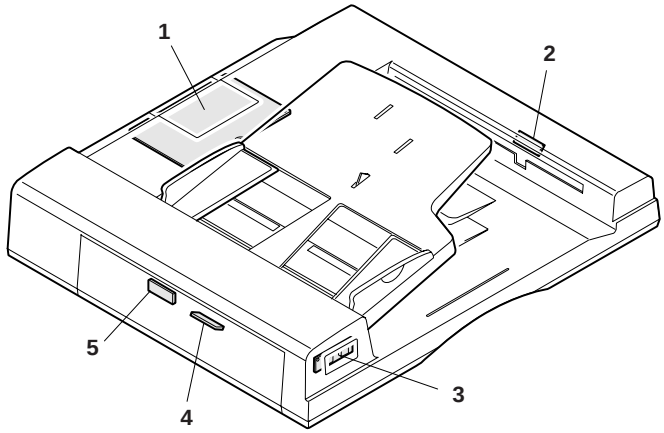
No.	Name
1	Original guide
2	Original support
3	Original transport cover
4	Original exit section cover
5	Display lamp
6	Original feed cover

B. Mechanism



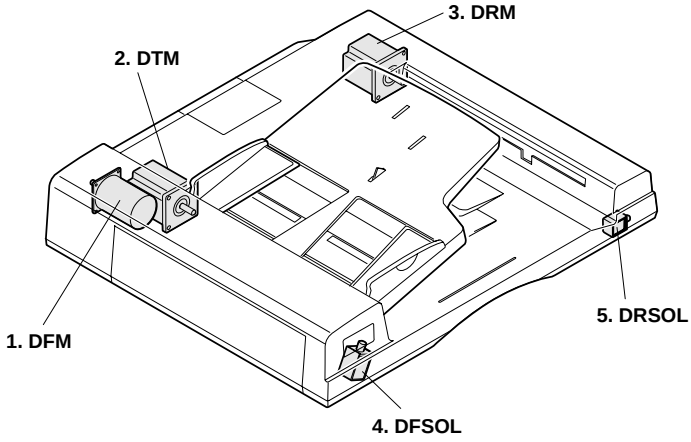
No.	Name	No	Name
1	Original stopper	2	A21 weight plate
3	Semi-circular roller	4	Paper exit roller
5	Flapper	6	Reverse rolloer
7	Transport belt follower roller	8	Oritinal transport belt
9	Transport belt drive roller	10	Paper feed roller
11	Resist roller	12	Separation roller

C. PWB distribution



No.	Name	Functions and operations
1	Control PWB	RADF unit control, communication with PCU
2	Reverse sensor PWB	Document reverse detection
3	LED PWB	Document feed, document remain display
4	Original timing sensor PWB	Document timing detection
5	Original reverse sensor PWB	Document feed detection

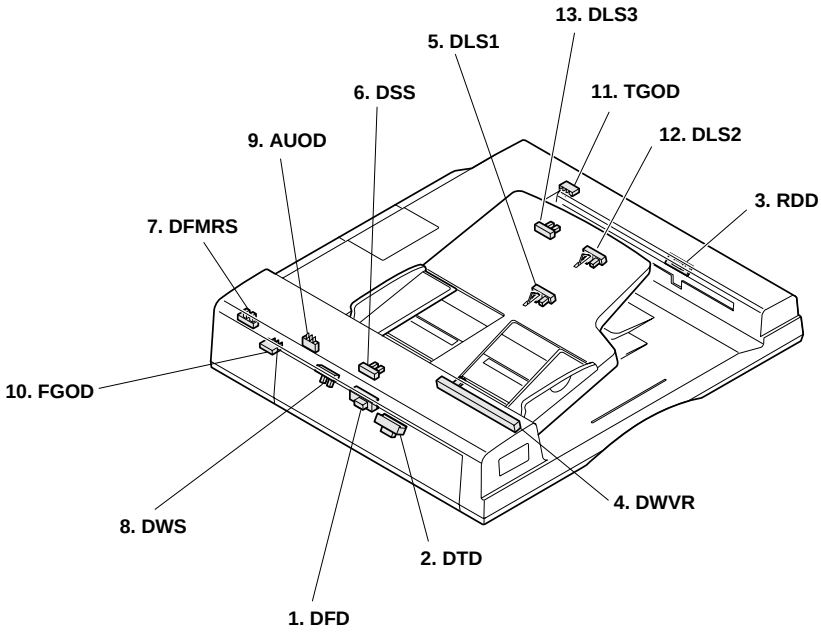
D. Motors, solenoids, and clutches



■ Motors

No.	Code	Name	Type	Functions and operations	Contact/output
1	DFM	Paper feed motor	DC motor	Drives the pickup roller, the separation roller, and the resist roller.	
2	DTM	Transport motor	Stepping motor	Drives the transport belt roller.	
3	DRM	Reverse motor	Stepping motor	Drives the reverse roller and the paper exit roller.	
4	DFSOL	Paper feed solenoid	DC solenoid	Presses the paper feed section weight plate onto the original and opens/closes the shutter.	When this is ON, the weight plate and the shutter fall.
5	DRSOL	Reverse solenoid	DC solenoid	Drives the reverse flapper to select the paper exit path or the reverse feed path.	When this is ON, the reverse path is selected.

E. Sensors, switches, detectors



No.	Code	Name	Type	Functions and operations	Contact/output
1	DFD	Original feed sensor	Reflection sensor	Turns HIGH when the original lead edge is fed just in front of the resist roller.	HIGH when the original is sensed.
2	DTD	Original timing sensor	Reflection sensor	Turns HIGH when the original lead edge is transported from the paper feed section to the vicinity of the transport belt.	HIGH when the original is sensed.
3	RDD	Reverse sensor	Reflection sensor	Turns HIGH when the original lead edge is transported to the reverse/paper exit path.	HIGH when the original is sensed.
4	DWVR	Original width volume	Slide volume	Original width detection on the tray	
5	DLS1	Original length sensor 1	Photo interrupter	Original length detection on the tray	HIGH when the original is sensed.
12	DLS2	Original length sensor 2	Photo interrupter	Original length detection on the tray	HIGH when the original is sensed.
13	DLS3	Original length sensor 3	Photo interrupter	Original length detection on the tray	HIGH when the original is sensed.
6	DSS	Original set sensor	Photo interrupter	Original detection on the tray	HIGH when the original is sensed.
7	DFMRS	Paper feed motor rotation sensor	Photo interrupter	Paper feed motor rotation detection	Pulse output
8	DWS	Original width sensor	Photo interrupter	Original width detection	LOW when the original is sensed.
9	AUOD	ADF open/close sensor	Microswitch	ADF unit open/close detection	LOW when closed.
10	FGOD	Paper feed guide switch	Microswitch	Paper feed cover open/close detection	LOW when closed.
11	TGOD	Reverse guide switch	Microswitch	Reverse cover open/close detection	LOW when closed.

[7] SETTING AND ADJUSTMENTS

Descriptive Conventions

For the sake of keeping the use of information common among several models, this manual uses the following conventions:

AR-4XX: Refers to model AR-405,

AR-2X1/3X1/4XX/250/XX6: AR-281/286/405/250/336,

AR-2XX, 3XX: Refers to model AR-280/285/335 for this issue.

∗ The "X" stands for any numeral 0 to 9.

1. List of adjustment items

Section		Adjustment item	Adjustment procedure
A. Process	(1)	Developing doctor gap adjustment	
	(2)	MG roller main pole position adjustment	MG roller main pole position adjustment
	(3)	Developing bias voltage adjustment	SIM8-1/44-15
	(4)	Main charger grid voltage adjustment	SIM8-2/44-15
	(5)	Transfer charger adjustment	SIM8-6
	(6)	Separation charger bias voltage adjustment	SIM8-7
	(7)	Photoconductor marking sensor sensitivity (gain) adjustment	SIM44-2
		Image density sensor sensitivity (gain) adjustment SIM44-2	SIM44-2
	(8)	Toner concentration adjustment (auto developer adjustment)	SIM25-2
B. Laser scanner (exposure)	(1)	Horizontal image distortion adjustment	LSU lever adjustment
	(2)	Print off-center adjustment	SIM50-10
	(3)	Laser power setting (copier mode)	SIM61-2/44-15 SIM61-4 Printer mode
C. Scanner	(1)	Vertical image distortion balance adjustment	Copy lamp unit installing position adjustment
	(2)	Vertical image distortion balance adjustment	No. 2/No. 3 mirror base installing position adjustment
	(3)	Vertical (main scanning direction) image distortion adjustment	Winding pulley position adjustment
	(4)	Horizontal (sub scanning direction) image distortion adjustment	F rail height adjustment
	(5)	Main scanning direction magnification ratio adjustment	CCD unit position adjustment
	(6)	Main scanning direction magnification ratio adjustment	SIM48-1
		Sub scanning direction magnification ratio adjustment ∗ Including the adjustment with SPF	SIM48-1
	(7)	Shading plate correction value setting	SIM46-17

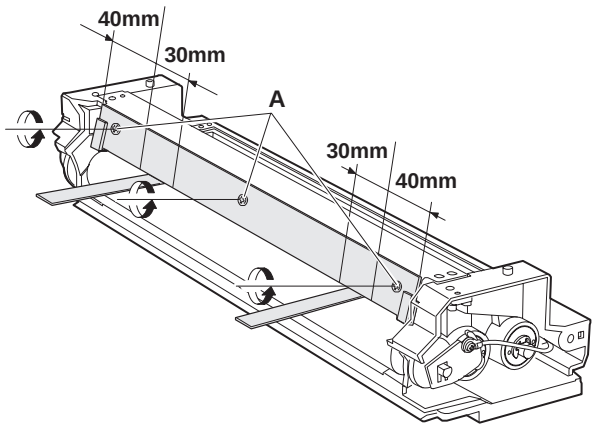
Section		Adjustment item	Adjustment procedure
C. Scanner	(8)	Scanning image position adjustment ∗ Including the adjustment with SPF	SIM50-2
	(9)	Original off-center adjustment ∗ Including the adjustment with SPF,RADF	SIM50-12
D. Copy density adjustment	(1)	Copy mode	SIM 46-2/46-3 (SIM46-5/6/7/9 /10/11)
E. Paper feed	(1)	Manual paper feed size detection level adjustment	SIM40-2
	(2)	Paper size setting	
F. Paper transport	(1)	Separation pawl operation timing adjustment	SIM51-1
	(2)	Paper resist pressure adjustment	SIM51-2
G. Others	(1)	Original size sensor detection level adjustment	SIM41-2
	(2)	Original size sensor detection level adjustment	SIM41-1
	(3)	Waste toner full detection level adjustment	
	(4)	Touch panel adjustment	SIM65-1
	(5)	Key touch sound volume adjustment	Sound volume adjustment
H. SPF	(1)	Hinge height check and adjustment	Table glass clearance adjustment
	(2)	Open/close sensor position adjustment	SIM 2-02
I. RADF (AR-RF1) (When the RADF is installed)	(1)	Document lead edge stop position adjustment	SIM 53-1
	(2)	Resist/timing/paper exit sensor adjustment	SIM 53-2
	(3)	Test mode with DIP switch	
J. RADF (AR-RF2) (When the RADF is installed)	(1)	Document lead edge stop position adjustment	SIM 53-1
	(2)	Resist/timing/paper exit sensor adjustment	SIM 53-2
	(3)	Test mode with DIP switch	

2. Copier adjustment

A. Process section

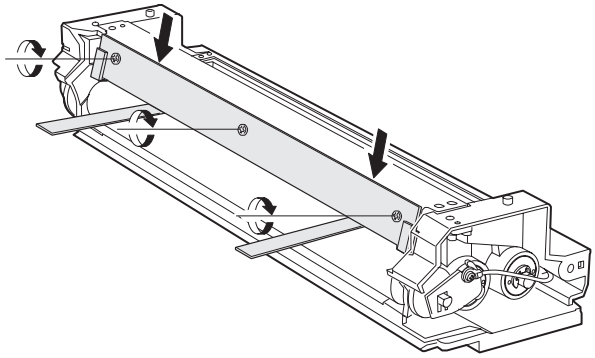
(1) Developing doctor gap adjustment

1) Remove the screw and the connector which connect the toner hopper and the developing unit, and separate them.
2) Loosen the DV doctor fixing screw A.
3) Insert a thickness gauge (0.6mm) into the clearance of 40mm ~ 70mm from the DV doctor edge.



4) Press the DV doctor in the arrow direction and tighten the DV doctor fixing screw. (Perform the same procedure for the front and the rear frame.)
5) Check that the clearance (2 positions) at 40mm ~ 70mm from the both ends is 0.6 ± 0.03mm.

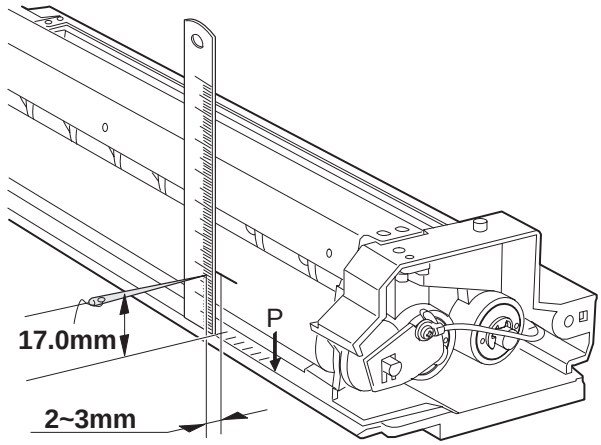
   ∗ When inserting a thickness gauge, be careful not to scratch the DV doctor and the MG roller.

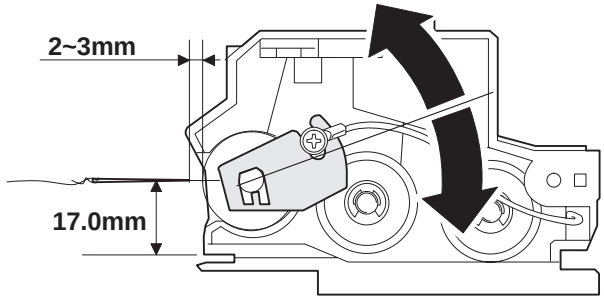


(2) MG roller main pole position adjustment

1) Remove the screw and the connector which connect the toner hopper and the developing unit, and separate them. Put the developing unit on a flat floor.
2) Tie a needle or pin on a string.
3) Hold the string and put the needle horizontally and move it toward the MG roller. (Do not use a clip which is too big to have a correct position since the MG roller diameter is small.)
4) With the needle tip at 2 ~ 3 mm apart from the MG roller surface, mark the point on the surface which is on the extended line of the needle tip.
5) Measure the distance between the marking position and surface P of the developing unit and check that it is 17mm.

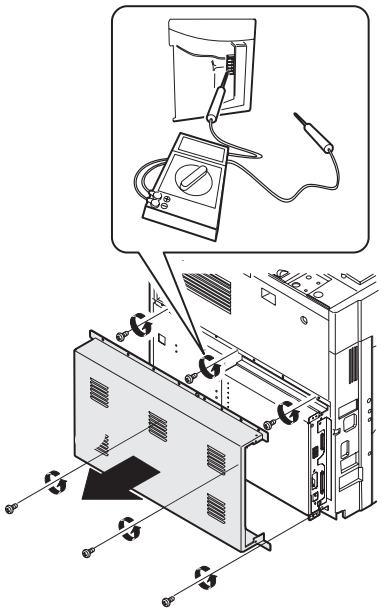
   If the distance is not as specified above, loosen the fixing screw A of the main pole adjustment plate, and move the adjustment plate to adjust.



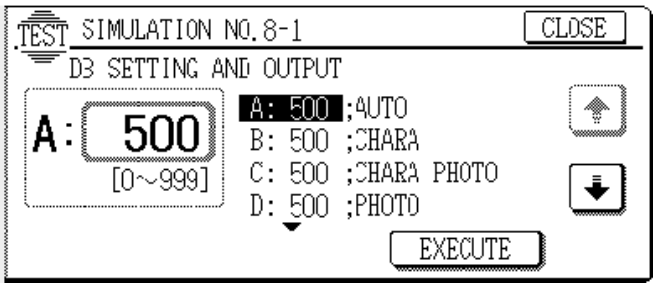


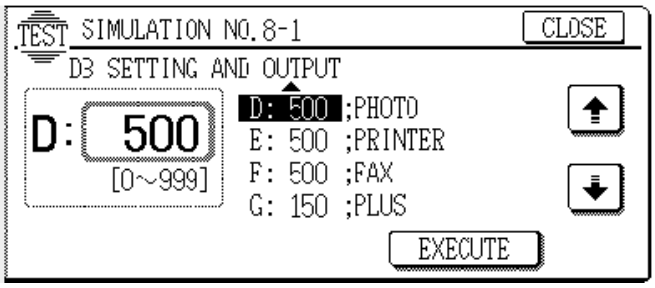
(3) Developing bias voltage adjustment

1) Set the digital multi-meter range to the DCV range.
2) Put the test probes between the DV bias output check pin (CN2-1 pin) of the high voltage unit and the chassis (GND).



3) Execute SIM 8-1.





The DV bias can be measured without installing the OPC drum and the developing unit.

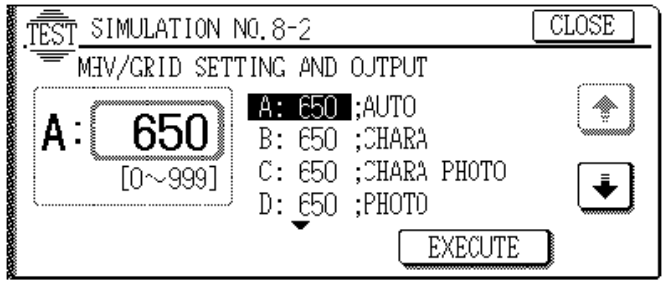
4) When the output voltage is within the adjustment range, change the displayed value and adjust. (1 step: about 1 V)

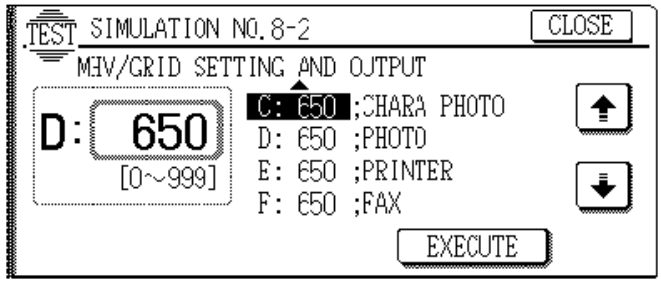
	Adjustment range
Developing negative bias voltage (Auto)	–500 ±5V
Developing negative bias voltage (Character)	–500 ±5V
Developing negative bias voltage (Character, Photo)	–500 ±5V
Developing negative bias voltage (Photo)	–500 ±5V
Developing negative bias voltage (FAX)	–500 ±5V
Developing bias (Printer)	–500 ±5V
Developing positive bias voltage	+150 ±5V

(The value and the output voltage may not coincide.)

(4) Main charger grid voltage adjustment

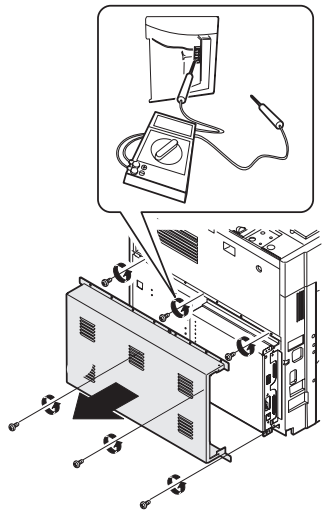
1) Install the DV unit, the drum holder unit, and the charger units to the copier.
2) Turn on the main switch, and execute SIM 8-2 to check the grid voltage set value.





(Measurement at the high voltage PWB check point)

3) Remove the rear cabinet.
4) Connect the digital multi-meter to the grid voltage output check pin (CN2-5 pin).
5) Set the digital multi-meter range to the DCV range.
(Use a digital multi-meter which allows measurement up to DC1000 V.)
6) Manually turn on the door switch.
7) Turn on the main switch, and execute SIM 8-2 to check.



8) If the output voltage is not in the specified range, change the displayed value and adjust. (1 step: about 1V)

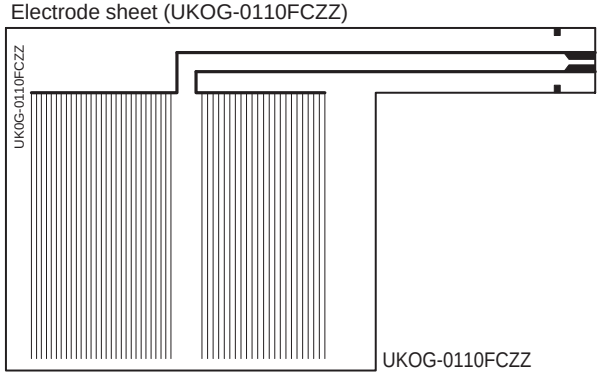
	Adjustment range	
	AR-2XX/3XX series	AR-405
Grid voltage (Auto)	–642 ±5V	–602 ±5V
Grid voltage (Character)	–642 ±5V	–602 ±5V
Grid voltage (Character, Photo)	–642 ±5V	–602 ±5V
Grid voltage (Photo)	–642 ±5V	–602 ±5V
Grid voltage (Printer)	–642 ±5V	–602 ±5V
Grid voltage (FAX)	–642 ±5V	–602 ±5V

(The value and the output may not coincide.)

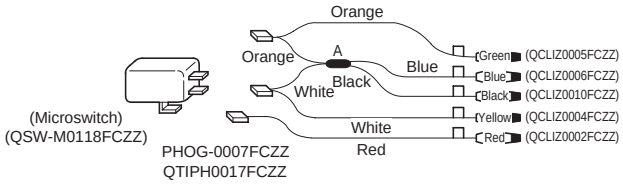
(5) Transfer charger current adjustment

a. Special measurement tool

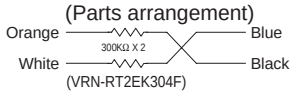
Electrode sheet (UKOG-0110FCZZ)



Electrode sheet harness (DHAI-0304FCZZ)



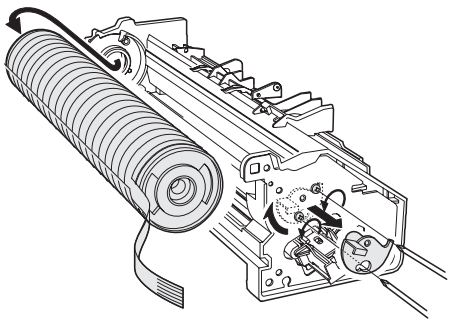
(Parts arrangement)



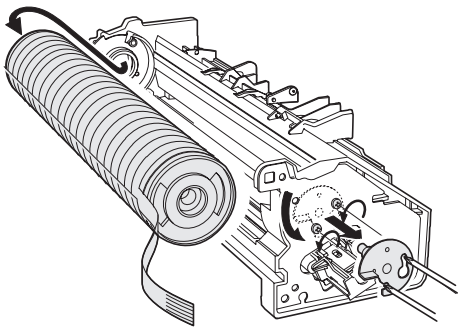
b. Adjustment procedure

1) Remove the developing unit, the transfer/separation charger unit, and the main charger unit from the copier.
2) Remove the process unit from the copier.
3) Remove the OPC drum from the process unit, and install the electrode sheet by using a band rubber, tape, etc.
4) Install the OPC drum with the electrode sheet installed to the process unit, and install the process unit to the copier.
5) Install the drum holder unit to the copier so that the electrode sheet lead wire can be taken out from the developing unit side.

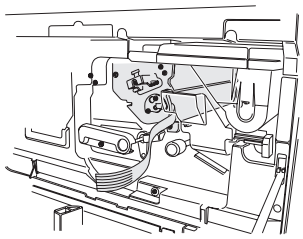
AR-335



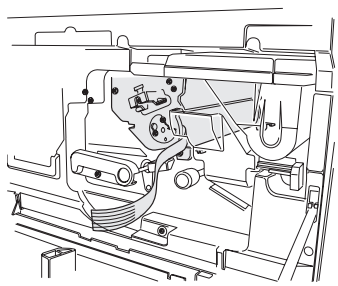
AR-405



AR-335



AR-405



6) Clean the transfer charger wire and install the transfer/separation charger unit to the copier.

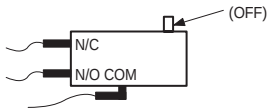
   (Do not install the main charger unit.)
7) Connect the electrode sheet and the digital multi-meter (or an ammeter). Manually turn on the door switch.
8) Check the drum current on the front frame side and the rear frame side.

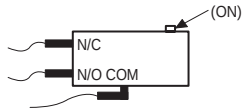
   The current on the front and the rear frame sides: within 6.0uA

   • Turn on the main switch, and execute SIM 8-6.

   (THVG will be turned ON for about 30 sec.)

   • Measure the drum current on the front frame side and the rear frame side.
     • When the microswitch is OFF, the drum current on the front frame side is displayed.
     • When the microswitch is ON, the drum current on the rear frame side is displayed.

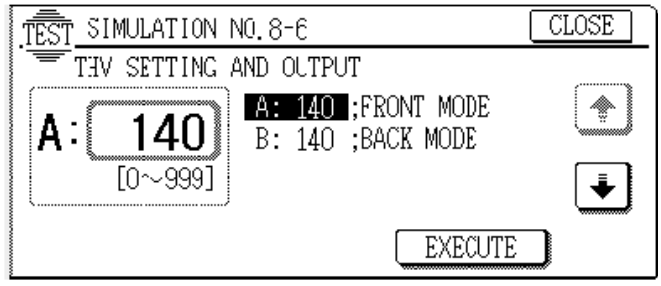




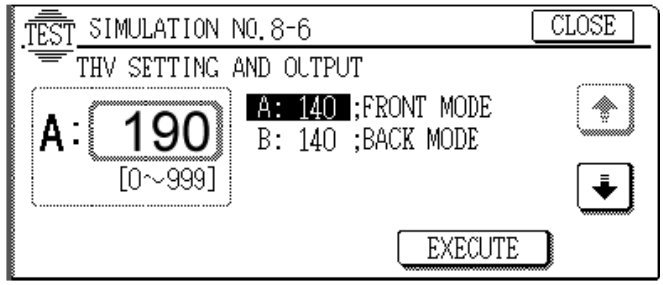
   • Check that the current on the front and the rear frame side is 6.0μA or less.

     If the current is greater than 0.6μA, replace the charger unit with new one.
9) Adjust THVG output current.
   • Turn on the main switch and execute SIM 8-6.

AR-2XX/3XX series



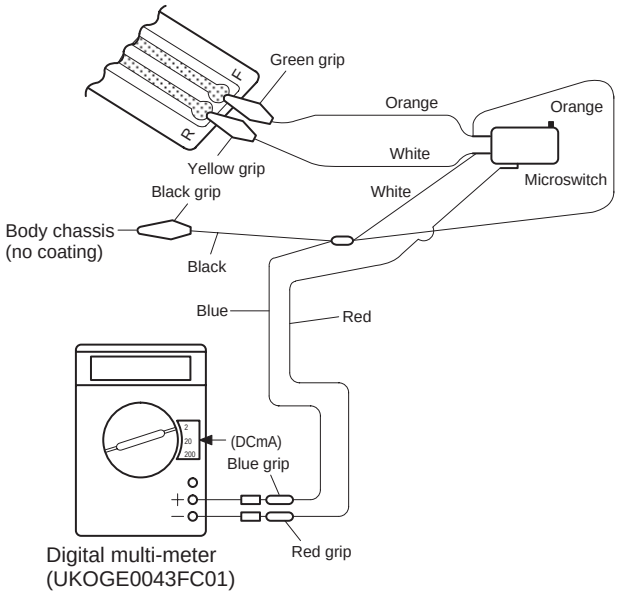
AR-405



(THVG will be turned on for about 30 sec.)

- If the output current is not in the specified range, change the displayed value and adjust. (1 step: about 0.1 μA)

Transfer charger current	Adjustment spec	
	AR-2XX/3XX series	AR-405
TC drum current (Front surface mode)	+13.5+1.5μA	+15.0+1.5μA
TC drum current (Back surface mode)	+13.5+1.5μA	+15.0+1.5μA



∗ Check that the black clip is securely grounded to the machine chassis.

When UKOGE0043CS01 is used:

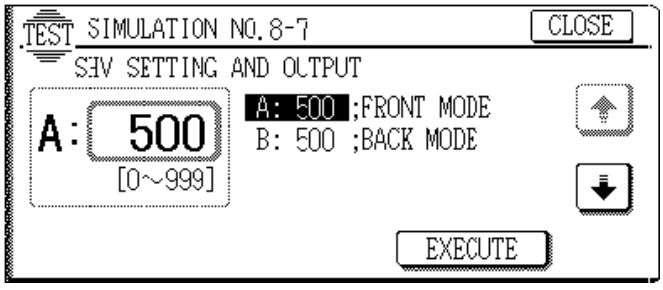
Knob 1: Set to DCmA.
Knob 1: Connect to 2.
Red clip: Connect to (+).
Blue clip: Connect to (–).

When an ammeter is used:

Red clip: Connect to (+) of the ammeter.
Blue clip: Connect to (–) of the ammeter.

(6) Separation charger DC component voltage

1) Install the DV unit, the drum holder unit, and the charger units to the copier.
2) Remove the rear cabinet.
3) Connect the digital multi-meter to SHVG output check pin (CN2-3 pin).
4) Set the digital multi-meter range to the DCV range.
5) Manually turn on the door switch.
6) Execute SIM 8-7. (SHVG will be turned on for about 30 sec.)



7) If the output voltage is not in the specified range, change the displayed value and adjust. (1 step: about 1V)

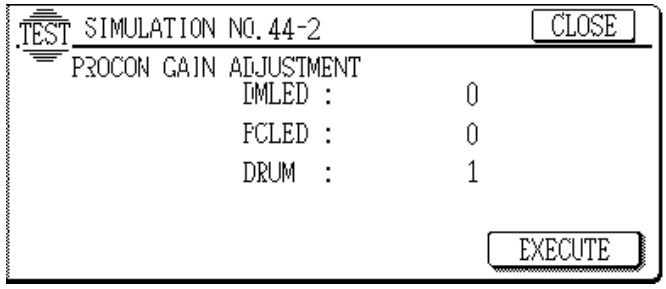
	Adjustment range	
	AR-2XX/3XX series	AR-405
Separation DC component voltage (Front surface mode)	–140 ±10V	–150 ±10V
Separation DC component voltage (Back surface mode)	–140 ±10V	–150 ±10V

(7) OPC drum marking sensor/Image density sensor gain adjustment

This adjustment must be performed in the following cases:

- When both sensors are cleaned in maintenance.
- When the value of DMLED/PCLED in SIM 44-12 are greater than about 100.
  Clean both sensors and perform the adjustment.

1) Execute SIM 44-2.



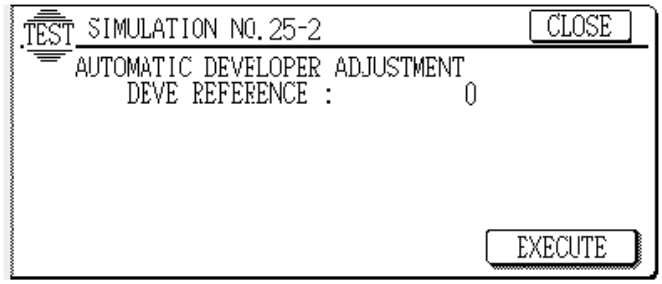
2) When the adjustment is completed, the gain value is displayed. If an error occurs during the adjustment, the error display is made.

(8) Toner density adjustment (Auto developer adjustment)

This adjustment must be performed in the following case:

- When new developer is supplied.

1) Execute SIM 25-2.



2) The adjustment is automatically made with the toner density sensor output value displayed. After 3 minutes from starting stirring, the toner density sensor is sampled 16 times, and the average value is stored as the toner density adjustment value.

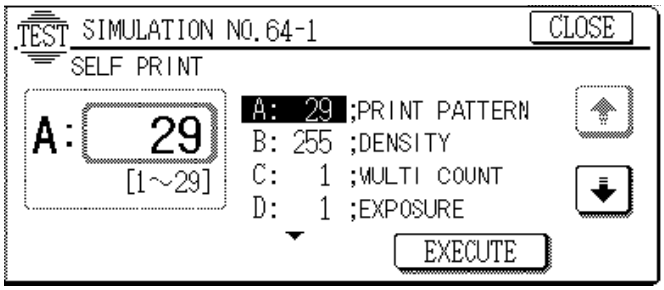
∗ When new developer is supplied, clear the developer counter with SIM 24-5.

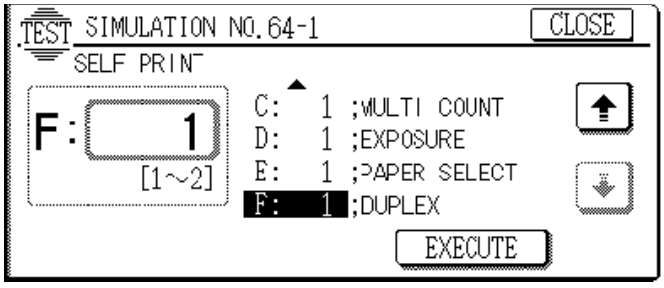
B. Laser scanner section

(1) Horizontal image distortion adjustment

1) Execute SIM 64-1, and print the pattern of SQUARE from the manual feed tray.

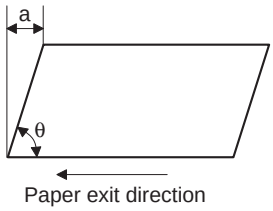
(A: 22 E: 1)



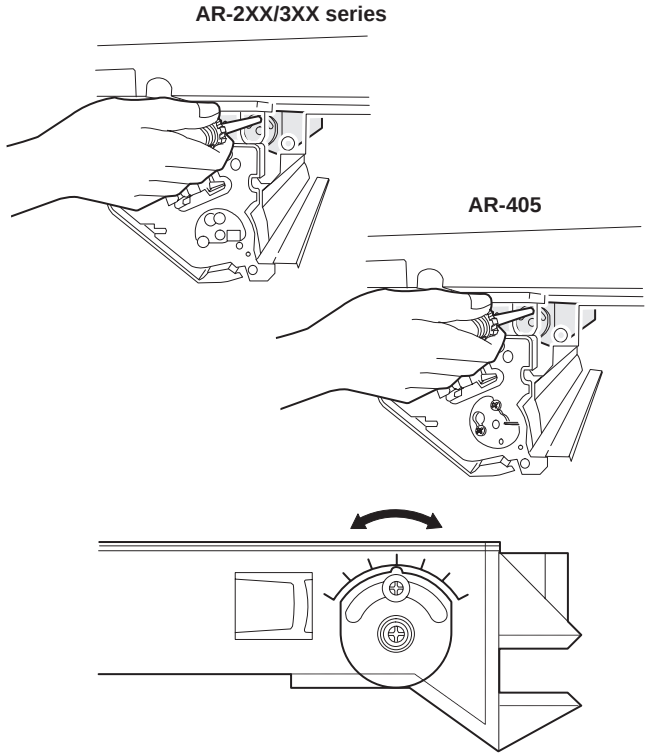


Set items
- A: Self print pattern
- B: Density level
- C: Setting of the number of self print sheets
- D: Density mode
  - 1 Auto
  - 2 Text
  - 3 Text/Photo
  - 4 Photo
- E: Cassette selection
  - 1 Manual feed
  - 2 Upper cassette
  - 3 Lower cassette
  - 4 Desk upper cassette
  - 5 Desk middle cassette
  - 6 Desk lower cassette
  - 7 LCC
- F: Duplex print selection
  - 1 Simplex
  - 2 Duplex

2) Obtain value a of the printed sheet.



3) Turn the adjustment handle to adjust according to the value a.



Adjustment handle:	1 scale = 0.5mm (dimension a)
θ<90 degress:	Right direction
θ>90 degrees:	Left direction
Adjustment specification:	a = 0 mm, θ = 90 degrees

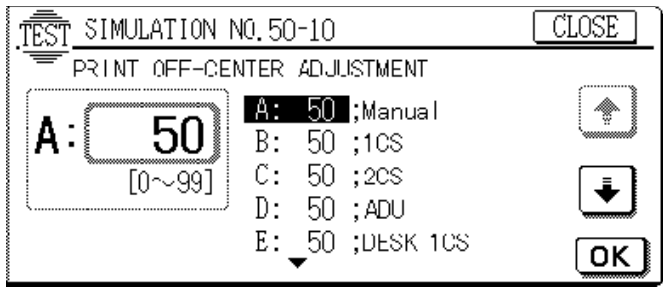
(2) Print off-center adjustment

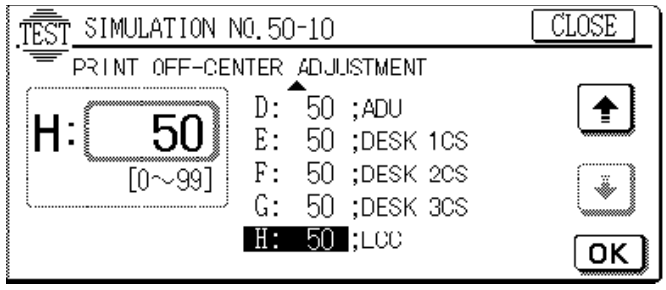
1) Execute SIM 64-1. print one sheet from each paper feed port.

Measure the void amount both sides.

∗ Select the self print pattern which allows easy measurement of the void amount.

2) Execute SIM 50-10.

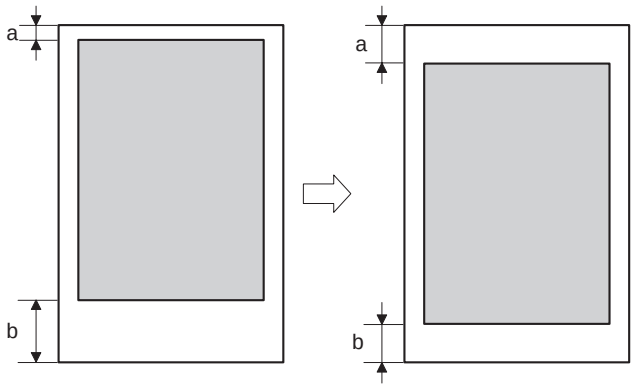




3) Change each value to adjust so that the void amounts of both sides are even.

   a > b: Increase the value.

   a < b: Decrease the value. (See the figure below.)



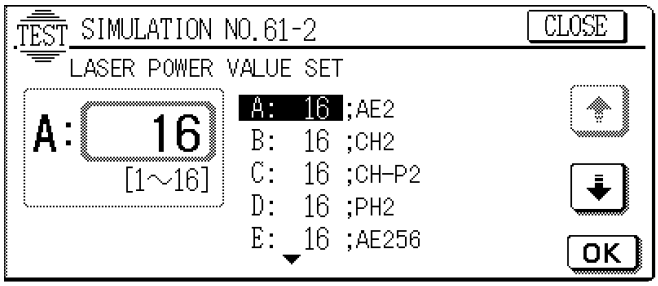
4) Press the CA key to terminate the simulation.

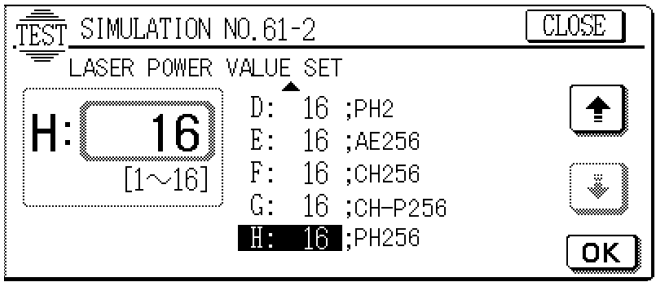
(3) Laser power setting

∗ Normally the laser power is automatically corrected by process control. Use the image density adjustment described later unless there is a special request from the user.

(AR-230/280/285/330/335 series copy mode)

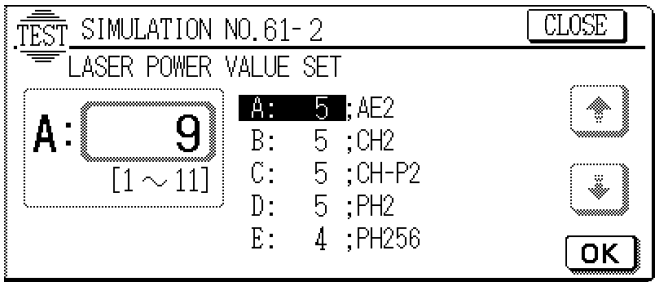
All must be set to "16."





(AR-405)

Set all to "5" except for PH256.



C. Scanner section

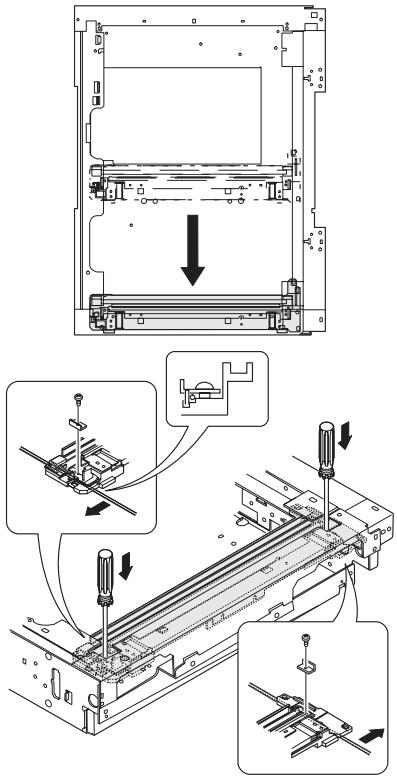
(1) Vertical image distortion balance adjustment (Copy lamp unit installing position adjustment)

1) Insert the front/rear mirror base drive wire into the frame groove and press and fix it with the wire fixing plate. At that time, do not tighten the wire fixing screw.

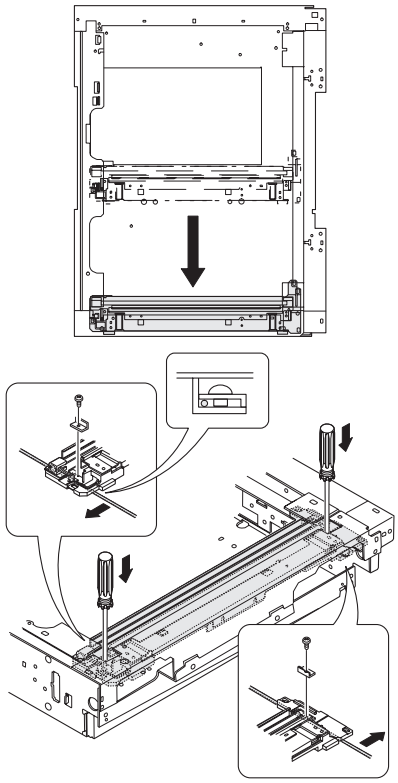
   Change the direction of the lamp portioning plate. (F and R)

2) Push the copy lamp unit onto the positioning plate, and tighten the wire fixing screw.

AR-2XX/3XX series



AR-405



∗ Note for assembling the copy lamp unit

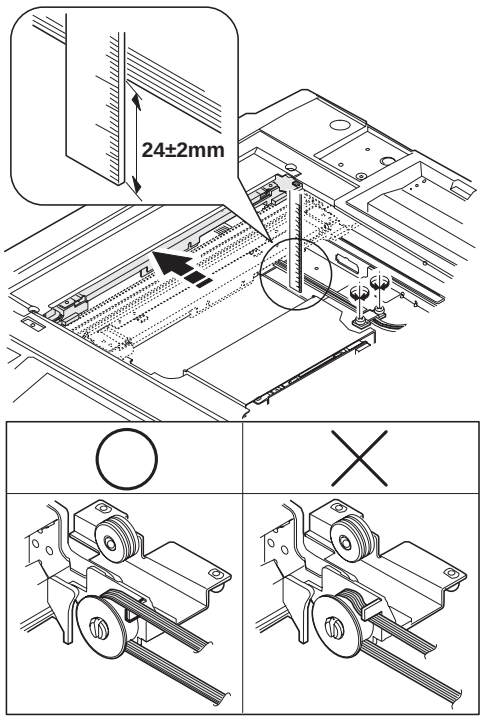
Move the copy lamp unit to the paper exit side, and fix the copy lamp unit wiht the harness guide so that the distance between the copy lamp harness and the lower frame is about 25 ~ 30 mm with the copy lamp harness extended.

Shift the copy lamp unit to the paper exit side, and fix it with the harness guide so that the distance from the lower frame is about 24 ± 2mm with the copy lamp harness extended.

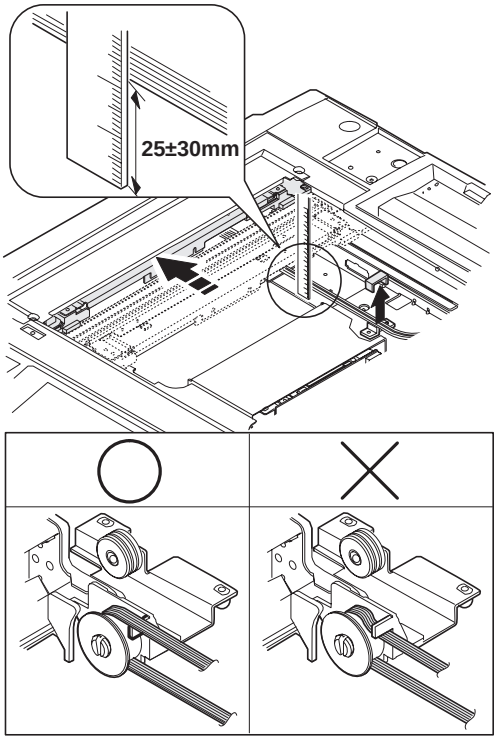
After fixing, manually shift the copy lamp unit a few times to check that it moves smoothly.

If the copy lamp harness is loosely fixed, the copy lamp unit may jump up when reading, resulting in abnormal reading.

AR-2XX/3XX series



AR-405

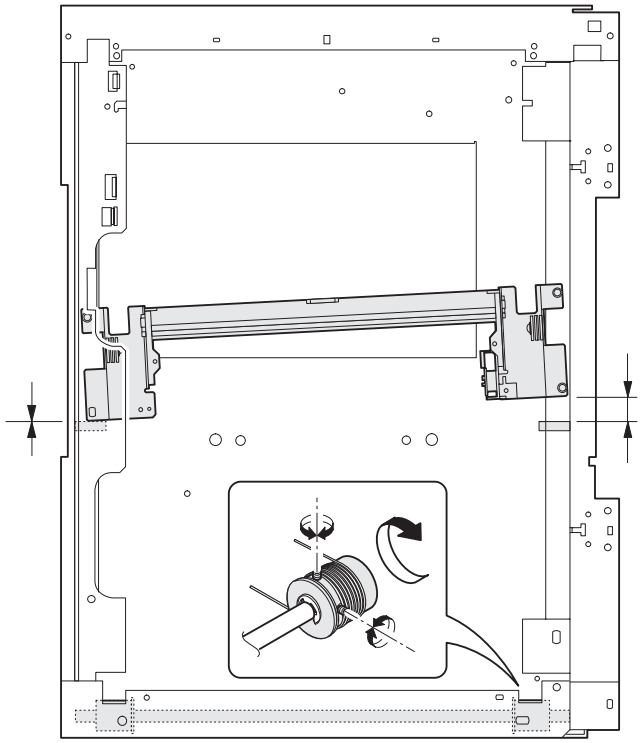


(2) Vertical image distortion balance adjustment (No. 2/3 mirror base unit installing position adjustment)

This adjustment is to adjust the parallelism of the mirror base to the OPC drum surface and the original surface.

1) Manually turn the mirror base drive pulley to bring mirror base B into contact with mirror base positioning plate.

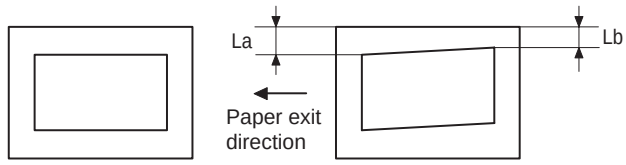
   If, at that time, the front frame side and the frame side of mirror base B are brought into contact with the mirror base positioning plate simultaneously, the parallelism is correct and there is no need for adjustment.



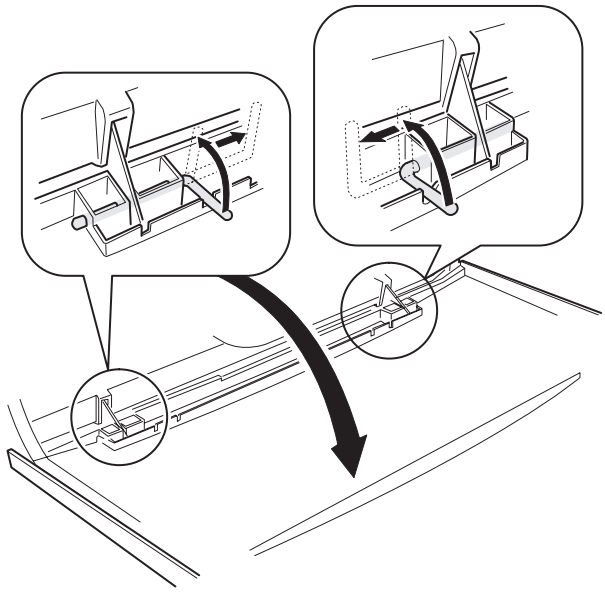
(3) Sub scanning direction distortion adjustment (Winding pulley position adjustment)

This adjustment is executed in the following cases:

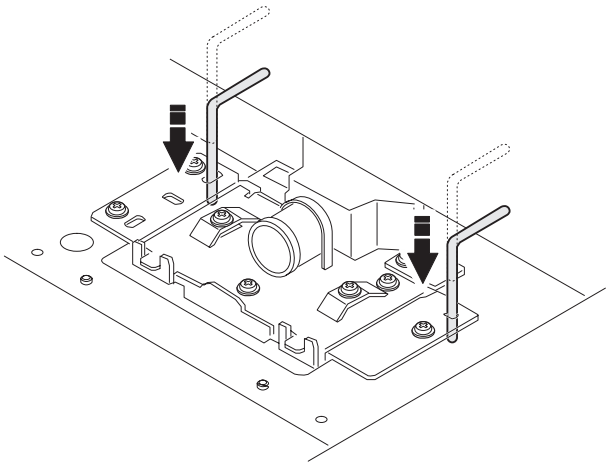
- When the mirror base drive wire is replaced.
- When the lamp unit, or No. 2/3 mirror holder is replaced.
- When a copy shown below is made.



9) Remove the slide pin of the front cover unit.

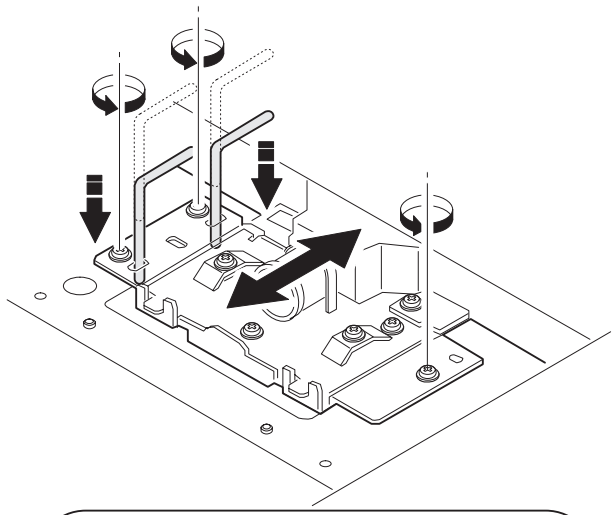


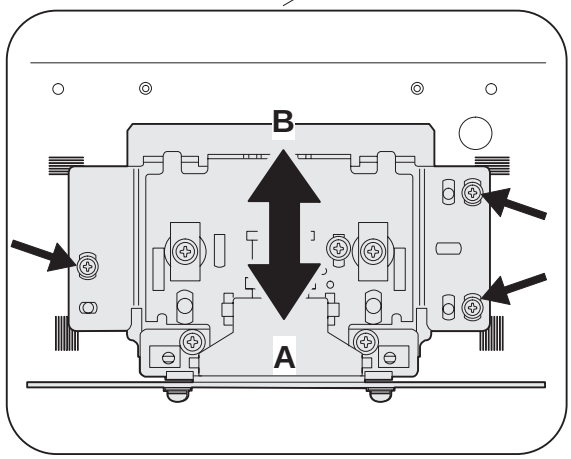
10) Insert the slid pin as shown below and make positioning in the vertical direction.



11) Insert the slide pin as shown below and make positioning in the horizontal direction.

(Initial position positioning is completed.)





Never loosen a screw other than these ones.

∗ Never loosen the screws which are not indicated in the figure. If loosened, the adjustment cannot be made and the unit must be replaced.

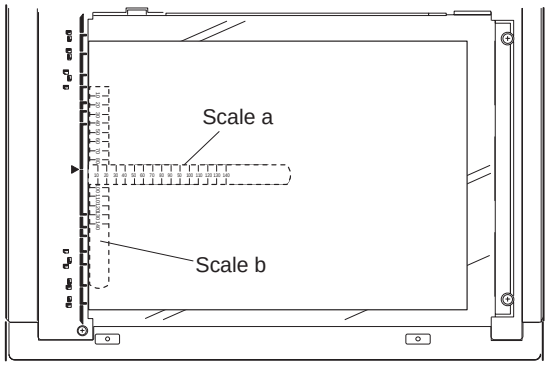
12) Make a sample copy in the initial position and measure the magnification ration again.

13) Change the installing position in the horizontal direction to adjust the magnification ratio.

- When the copy image is longer than the original, move in the direction of B.
- When the copy image is shorter than the original, move in the direction of A.
- One scale of scribe line corresponds to 0.2%.
- For fine errors which cannot be adjusted with this adjustment, use the next simulation SIM 48-1.

(6) Main/sub scanning direction magnification ratio adjustment

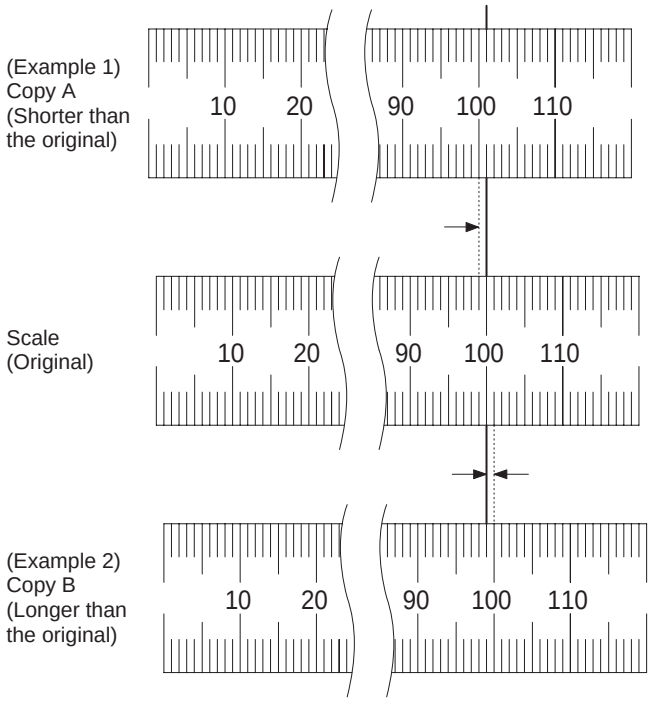
1) Before this adjustment, perform the previous adjustment of CCD unit installation position.
2) Place a scale on the original table as shown. (Scale a and scale b may be placed together or individually.)
   - After warming up, the ready lamp lights up.
   - The current set value is displayed simultaneously. (0 ~ 20)



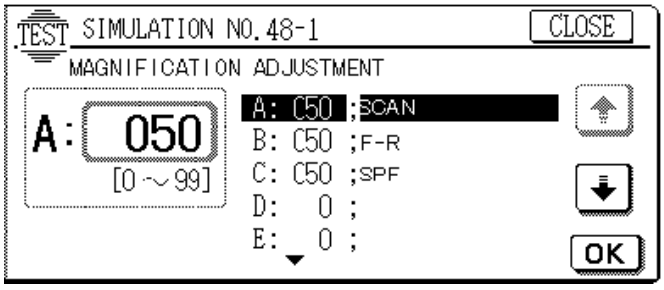
3) Make a normal copy and obtain the main/sub scanning direction magnification ratios.

   Copy magnification ratio (MRCP)

$$= \frac{(\text{Original dimension} - \text{Copy dimension})}{\text{Original dimension}} \times 100\%$$



4) Execute SIM 48-1.



5) Change value A so that the magnification ratio in the sub scanning direction is within the specified range.
6) Change value B so that the magnification ratio in the main scanning direction is within the specified range.

- Adjustment specification: Within ±0.8%
- When the copy dimension is smaller than the original

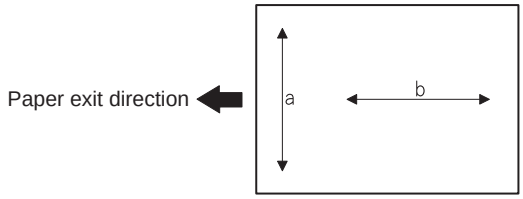
  ↓

  Make the value greater.
- When the copy dimension is greater than the original

  ↓

  Make the value smaller.

When the value is changed by one step, the ratio is changed by about 0.1%.



a —> Magnification ration in the main scanning direction
b —> Magnification ratio in the sub scanning direction

[AR-280 only]

7) Make a copy of A3 original with SPF, and measure the magnification ratio in the sub scanning direction.
8) Change value C so that the magnification ratio in the sub scanning direction is within the specified range.
9) Press the CA key to cancel the simulation.

(7) Copy image position, image loss, void area adjustment

Before performing this adjustment, check that SIM 50-5 is set to 50. If not, set it to 50.

This adjustment uses SIM 50-2 and SIM 50-1.

The above two simulations are used in the following manner.

Sim 50-2: Rough adjustment

SIM 50-1: Fine adjustment

If the desired value is obtained by SIM 50-2, there is no need to perform SIM 50-1.

(Adjustment items)

No.	Adjustment item	Operation mode		SIM 50-2 set item	SIM 50-1 set item	Adjustment value	Note
1	Lead edge image loss	Document table mode	SPF mode	IMAGE LOSS	IMAGE LOSS	1.5 to 3.0 mm	
2	Lead edge void area	Document table mode	SPF mode	DEN-A	DEN-A	1.5 to 3.0 mm	
3	Rear edge image loss		SPF mode	REAR LOSS (SPF)	REAR LOSS (SPF)	1.5 to 3.0 mm	AR-4XX series only
4	Rear edge void area	Document table mode	SPF mode	DEN-B	DEN-B		
5	Image reference position	Document table mode			RRC-A		
6	Paper timing	Document table mode	SPF mode		RRC-B		
7	Image reference position		SPF mode		SPF		
8	Distance between image lead edge position and scale of 10mm × 10	Document table mode		L1			
9	Distance between paper lead edge and image lead edge × 10	Document table mode		L2			
10	Distance between image lead edge position x scale of 10mm × 10		SPF mode	L3			

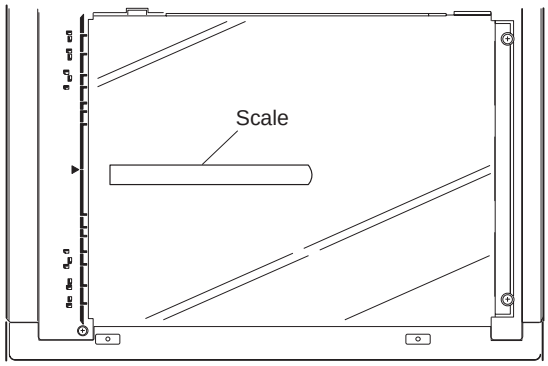
Adjustment items 1 ~ 4 can be adjusted either with SIM 50-1 or SIM 50-2.

The adjustment values of items 8 ~ 10 will affect the adjustment items 5 ~ 7 automatically.

Therefore, adjusting the items 8 ~ 10 will lead to the same result as adjusting the items 5 ~ 7.

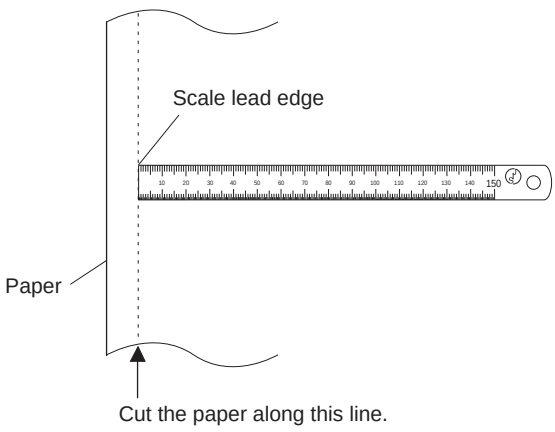
1) Place a scale on the document table as shown below, and make a normal (100%) copy.

   Note that the scale must be place in parallel to the scanning direction and that the scale lead edge must be clearly copied.



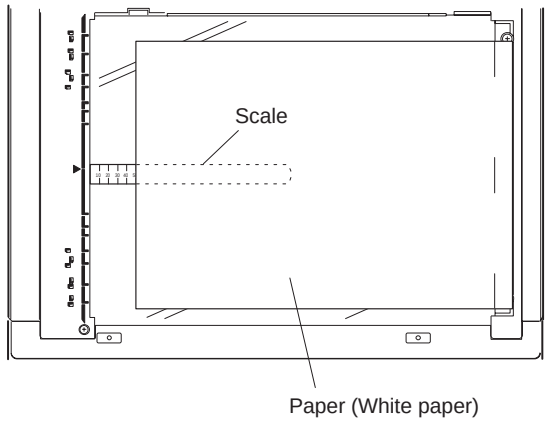
2) Process the copied paper as shown below.

   Cut the copied paper along the line at the edge of the scale image. The cut line and the scale image must form a right angle (90 degrees).



3) Place the scale on the document table as shown below.

   Note that the scale must be place in parallel to the scanning direction and that the scale lead edge is in close contact with the document guide plate.

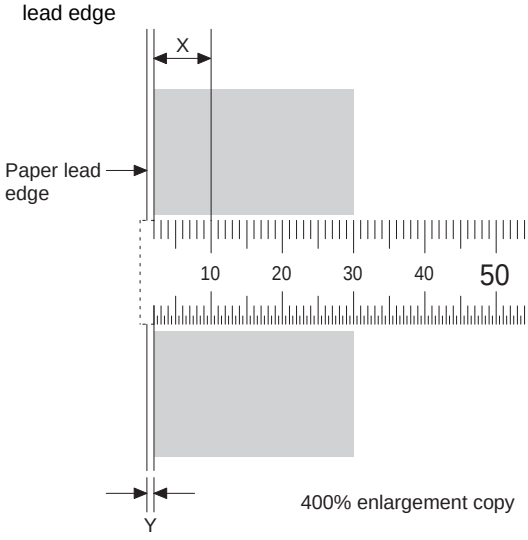


4) Enter the SIM 50-2 mode.
5) Set the image loss and DEN-A set values to "0."
6) Set all the values of L1, L2, and L3 to "0."
7) Make a copy at 400%. (Document table mode)

8) Measure dimensions X and Y of the copied scale image.

X: Distance between the copy image lead edge and the scale of 10mm

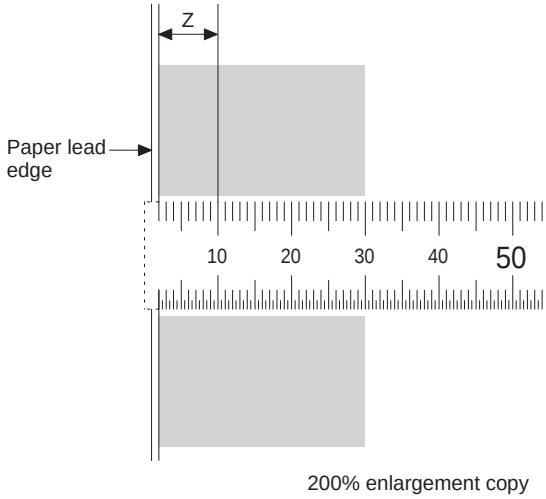
Y: Distance between the paper lead edge and the copy image lead edge



9) Set the document mace in procedure 1) and 2) on the SPF, and make a copy at 200% in the SPF mode.

10) Measure the dimension L3 of the copied scale image.

Z: Distance between the copy image lead edge and the scale of 10mm



11) Enter L1, L2, and L3 as follows:

$L1 = X \times 10$

$L2 = Y \times 10$

$L3 = Z \times 10$

12) Cancel the simulation mode, make a copy in the document table mode and in the SPF mode, and check that the lead edge image loss and the void area are in the specified range as shown below:

Lead edge image loss: 1.5 ~ 3.0mm

Lead edge void area: 1.5 ~ 3.0mm

If the above condition is not satisfied.

13) Enter the SIM 50-1 mode.

14) Set the scale on the document table in the same manner as in procedure 3). Make a copy at 50% and at 400% in the document table mode.

15) Measure the distance between the paper lead edge and the copy image lead edge of 500% copy and 400% copy.

16) Check that there is no difference between the measured distance of 50% copy and that of 400% copy.

If the difference is more than 1.5mm, change and adjust the RRC-A value.

Repeat procedures 12) to 16) until the above condition is satisfied.

17) Use the document made in procedures 1) and 2) and make a copy at 50% and at 400% in the SPF mode.

18) Measure the distance between the paper lead edge and the copy image lead edge of 505 copy and that of 400% copy.

19) Check that there is no difference between the above measured distance of 50% copy and that of 400% copy.

If the difference between the distances is more than 1.5mm, change and adjust the SPF value.

Repeat procedures 17) and 18) until the above condition is satisfied.

20) If the lead edge void area is outside the specified range, change the DEN-A value.

21) If the lead edge image loss is outside the specified range, change the IMAGE LOSS value.

22) If the rear edge void area is outside the specified range, change the DEN-B value.

23) If the rear edge void area is outside the specified range, change the REAR LOSS (SPF) value.

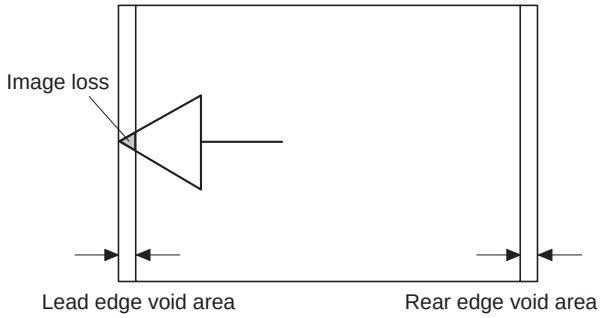
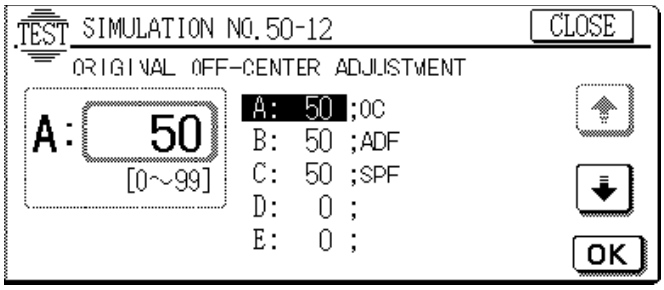


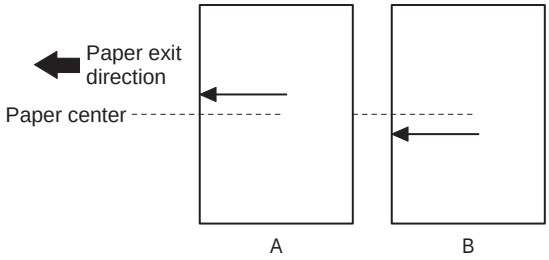
IMAGE LOSS	Lead edge image loss	1.5 to 3.0 mm	The greater the set value is, the greater the image loss is.
DEN-A	Lead edge void area	1.5 to 3.0 mm	The greater the set value is, the greater the void area is.
DEN-B	Rear edge void area	1.5 to 3.0 mm	The greater the set value is, the greater the void area is.
REAR LOSS	Rear edge image loss	1.5 to 3.0 mm	The greater the set value is, the greater the image loss is.

(8) Original off-center adjustment

1) Place the reference original for the off-center adjustment on the original table.
2) Execute SIM 50-12.



3) Press the PRINT button after lighting the RPL, and a copy will be made. If the arrow image on the copy paper is shifted from the center line as shown below, change the set value and adjust.



In the case of A	decrease the set value.
In the case of B	increase the set value.
Adjustment specification:	Within ± 1.7mm
(One point of the set value corresponds to the change of about 0.1mm.)	

[In the case of the AR-280]

4) Make a copy of A4 (8 1/2 × 11)original with the SPF, and measure the off-center.
5) Change value C so that the off-center is within the specified range.

[In the case of the AR-285/335]

4) Make a copy of A4 (8 1/2 × 11) original with the RADF, and measure the off-center.
5) Change value B so that the off-center is within the specified range.
6) Press the CA key to cancel the simulation.

D. Image density adjustment

The image density adjustment is required for the following copy quality mode by using the simulation.

There are two methods; the collective adjustment and the individual adjustment of the copy quality mode.

Copy mode (AR-230/280/285/330/335 series)

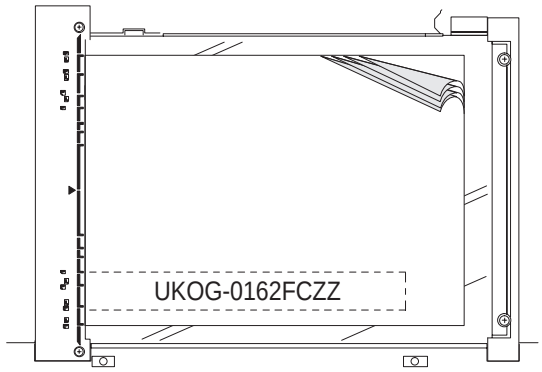
Copy quality mode		Collective adjustment	Individual adjustment
Binary value mode	Auto mode	SIM46-2	
	Character mode		SIM46-9
	Character/Photo mode		SIM46-10
	Photo mode		SIM46-11
Multi value (Hifi) mode	Auto mode	SIM46-3	
	Character mode		SIM46-5
	Character/Photo mode		SIM46-6
	Photo mode		SIM46-7

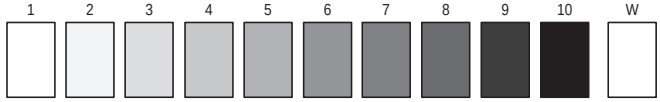
Copy mode3 (AR-4xx series)

Copy quality mode		Collective adjustment	Individual adjustment
Binary value mode	Auto mode	SIM46-2	
	Character mode		SIM46-9
	Character/Photo mode		SIM46-10
	Photo (error diffusion) mode		SIM46-11
Multi value (Hifi) mode	Photo (Dither pattern) mode (Japan only)	SIM46-7	

(1) Test chart setting

1) Place a test chart (UKOG-0162FCZZ) on the original table.
2) Place several sheets of A3 (11 × 17) white paper (Sharp's specified paper) on the test chart at the center reference.





Test chart comparison

UKOG-0162FCZZ DENSITY No.	1	2	3	4	5	6	7	8	9	10	W
UKOG-0089CSZZ DENSITY No.	0.1		0.2		0.3				0.5	1.9	0
KODAK GRAY SCALE		1		2		3		4		19	A
SHARP CORPORATION MADE IN JAPAN											

(2) Density adjustment procedure

a. Collective adjustment of two or more copy quality modes

Normally this adjustment is performed with SIM 46-2 and SIM 46-3. In this method, two or more copy density adjustments in different modes can be adjusted collectively.

1) Execute SIM 46-2 and SIM 46-3.

(AR-203/280/265/330/335 series)
(Binary value mode)

Quality mode	Linked simulation data
AE3.0 (AE)	
CH3.0 (Character)	Sim46-9
MIX3.0 (Character/Photo)	Sim46-10
PH3.0 (Photo)	Sim46-11

(AR2X1/3X1/4XX/250/XX5 series)

Quality mode	Linked simulation data
AE3.0 (AE)	
CH3.0 (Character)	Sim46-9
MIX3.0 (Character/Photo)	Sim46-10
PH3.0 (2)	Sim46-11 (Photo error diffusion)
PH3.0 (256)	Sim46-7 (Photo multi value dither) (Japan only)

2) Press the COPY button to make a copy.

Check that the copy density is as shown in the table below. If not, change the adjustment value.

- Adjustment spec

Mode	EXP	Chart No.	Adjustment level	Chart No.	Adjustment level
Character	3	3	Copied.	2	Not copied.
Character /Photo	3	3	Copied.	2	Not copied.
Photo	3	3	Copied.	2	Not copied.
Auto		3	Copied.	2	Not copied.

If the copy density is too light, increase the adjustment value.

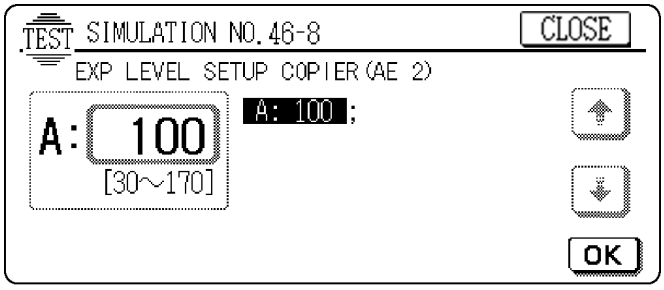
If the copy density is too dark, decrease the adjustment value.

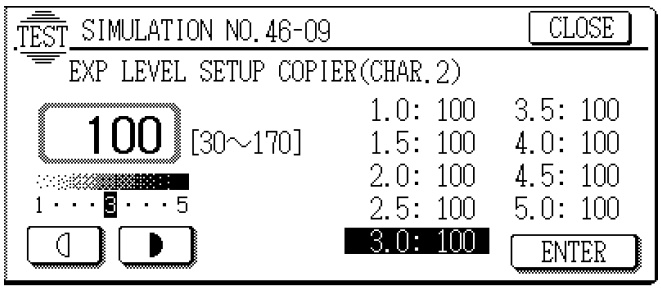
Adjustment range: 30 ~ 170

b. Individual adjustment of each copy quality mode

This adjustment is used when a different density level for different copy quality mode is required. SIM 46-5 to -7 and SIM 46-9 to -11 are used.

1) Execute the simulation corresponding to the copy quality mode to be adjusted.





2) Press the COPY button to make a copy.

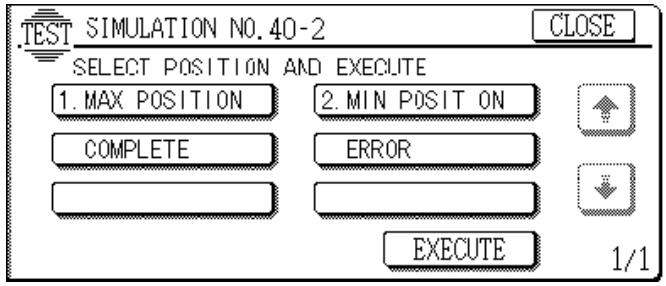
Check that the copy density is as shown in the table below. If not, change the adjustment value.

For the auto mode, there is only one adjustment value. For the other modes, the adjustment value for each density level must be adjusted.

E. Paper feed

(1) Manual paper feed size detection level adjustment

1) Execute SIM 40-2.



2) Extend the manual paper feed guide fully.

3) Press [MAX POSITION] on the LCD of the operation panel to highlight it.

4) Press [EXECUTE] on the LCD of the operation panel to highlight it.

If normal, the highlight is shifted from [MAX POSITION] to [MIN POSITION].

5) Narrow the manual paper feed tray guide fully.

6) Press [EXECUTE] on the LCD of the operation panel to highlight it.

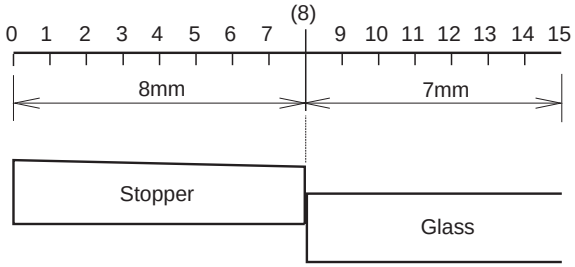
Check that [COMPLETE] is highlighted.

7) Press the CA key to cancel the simulation.

I. RADF (AR-RF2)

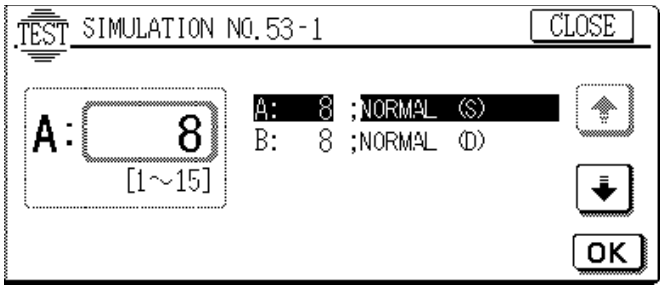
(1) Document lead edge stop position adjustment

- The ADF document lead edge stop position is adjusted by using SIM 53.
- When shipping, the lead edge is set to (8). An adjustment may be required depending on documents.
  The adjustment range is 8mm (8 steps) in the stopper side and 7mm (7 steps) in the glass side. (1mm: 1 step) For each mode of single, and duplex, the adjustment value can be set independently.



Viewed from the operator

1) Execute SIM 53-1 on the copier.



2) Enter the stop position adjustment value in each mode.

[Explanation of abbreviation]

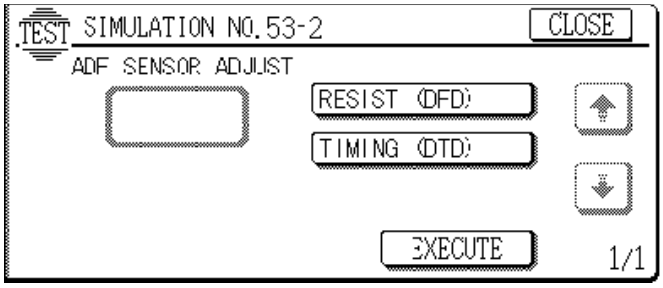
NORMAL (S): Single, normal paper stop position adjustment

NORMAL (D): Duplex, normal paper stop position adjustment

08: ±0.0000mm (Initial value)	00: –8.000mm	09: +1.000mm
	01: –7.000mm	10: +2.000mm
	02: –6.000mm	11: +3.000mm
	03: –5.000mm	12: +4.000mm
	04: –8.000mm	13: +5.000mm
	05: –8.000mm	14: +6.000mm
	06: –8.000mm	15: +7.000mm
	07: –8.000mm	

(2) Resist/timing/paper exit sensor adjustment

1) Execute SIM 53-2 on the copier



2) Select each sensor and press the EXECUTE key, and the adjustment will be performed automatically.

REGIST (DFD): Resist sensor

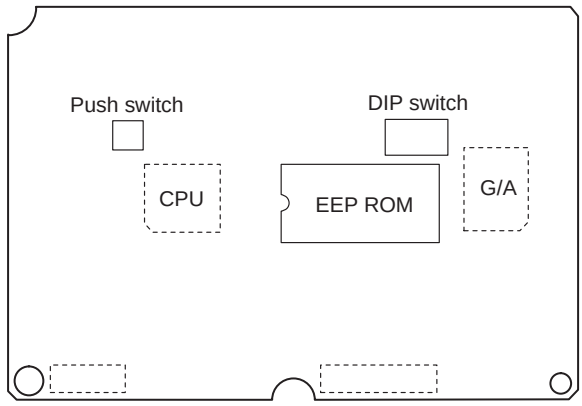
TIMING (DTD): Timing sensor

REVERSE (RDD): Reverse sensor

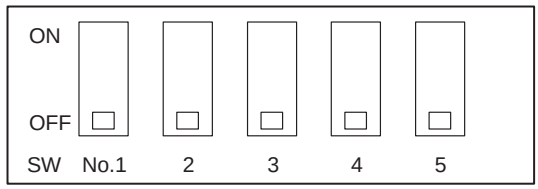
(3) Test mode with DIP switch

The RADF (ADF) single unit operation can be checked with the DIP switch on the control PWB shown below.

(Control PWB)

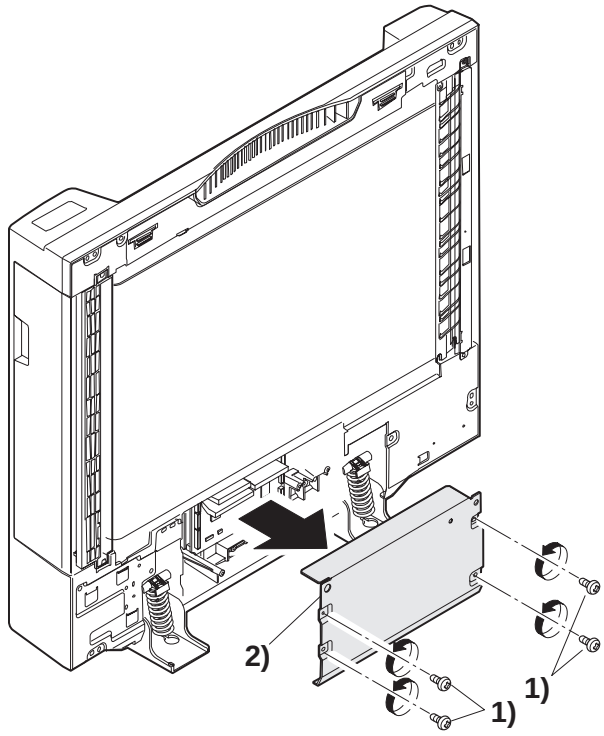


(DIP switch)

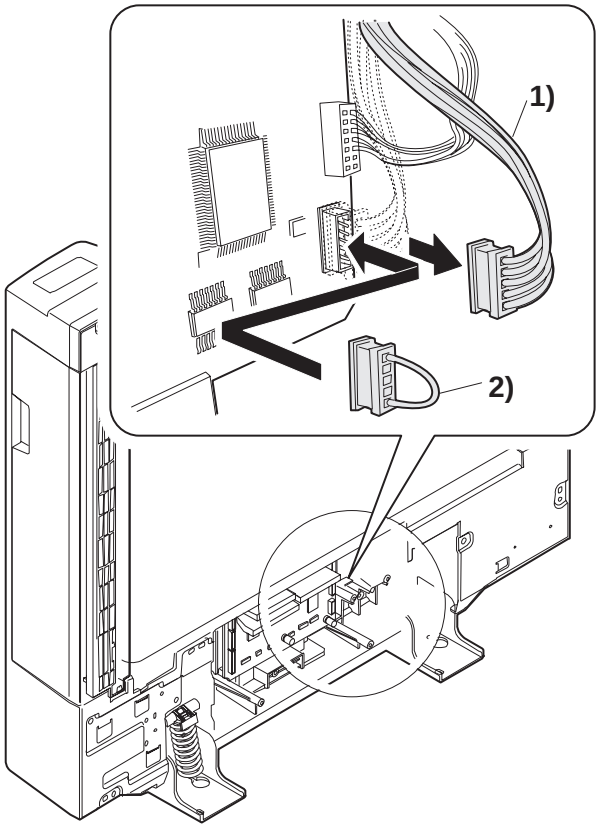


(Operating procedure)

1) Remove the control PWB cover.



2) Disconnect the connector from the CN9 on the control PWB, and connect the short connector (OCW4074K526//) instead.



3) Remove the ADF/RADF top cover, and set the DIP switch on the control PWB to the desired test mode. While pressing the push switch ON, turn on the power of the machine.

   (With the above operation, the machine enters the test mode.)

4) Turn on the push switch on the control PWB.

   (Test operation is started.)

(To switch to another test mode, set the DIP switch on the control PWB to the desired test mode, and open/close the ADF/RADF paper feed section cover (microswitch FGOD it turned OFF and ON).

- DIP switch 3 meaning

	ON	OFF
DIP switch 3	For AB series	For inch series

- Kinds of test modes and setting of DIP switch

No.	Test mode name	DIP switch
a	Single paper pass mode	All OFF
b	Duplex paper pass mode	1 ON, the others OFF
c	Single aging mode	1, 3 ON, 2, 4, 5 OFF
d	Duplex aging mode	4 ON, the others OFF
e	Load check mode	1, 5 ON, 2, 3, 4, OFF
f	EEPROM initializing mode + all sensors adjustment mode	3, 5 ON, 1, 2, 4, OFF
g	Resist sensor adjustment mode	4, 5 ON, 1, 2, 3, OFF
h	Timing sensor adjustment mode	1, 4, 5, ON, 2, 3, OFF
i	Paper exit sensor adjustment mode (AR-RF1 only)	3, 4, 5, ON, 1, 2, OFF

a. Single paper pass mode (with paper)

When documents are set on the paper feed tray, the document feed LED lights up. When the push switch is pressed, all documents on the paper feed tray are fed.

b. Duplex paper pass mode (with paper)

When documents are set on the paper feed tray, the document feed LED lights up. When the push switch is pressed, all documents on the paper feed tray are fed.

c. Single aging mode (without paper)

When the push switch is pressed, aging is started. The operation timing is made by detection of each document size on the tray.

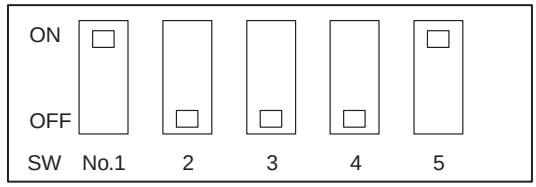
d. Duplex aging mode (without paper)

When the push switch is pressed, aging is started. The operation timing is made by detection of each document size on the tray.

e. Load check mode

Set the DIP switch on the contro PWB as shown below, and open and close the ADF/ RADF paper feed section cover to enter the load check mode.

(DIP switch)



Every time when the push switch is pressed, the operation is performed in the sequence of 1) ~ 21)

1) Document feed LED ON, Document remain LED ON, Paper feed solenoid ON
2) Reverse solenoid ON, Paper feed solenoid OFF
3) Document feed LED OFF, Document remain LED OFF, Reverse solenoid OFF
4) Document feed LED ON, Document remain LED OFF, Paper feed solenoid ON, Paper feed motor forward rotation 450mm/s (Preliminary paper feed operation)
5) Document feed LED OFF, Document remain LED OFF, Paper feed solenoid OFF, Paper feed motor OFF
6) Document feed LED ON, Document remain LED ON, Paper feed motor reverse rotation 450mm/2 (2-step advanced feed)
7) Document feed LED OFF, Document remain LED OFF, Paper feed motor OFF
8) Document feed LED ON, Document remain LED ON, Paper feed motor reverse rotation 850mm/s (Paper feed operation)
9) Document feed LED OFF, Document remain LED OFF, Paper feed motor OFF
10) Document feed LED ON, Document remain LED ON, Transport motor forward rotation 867mm/s
11) Document feed LED OFF, Document remain LED OFF, Transport motor OFF
12) Document feed LED ON, Document remain LED ON, Transport motor reverse rotation 867mm/s
13) Document feed LED OFF, Document remain LED OFF, Transport motor OFF
14) Document feed LED ON, Document remain LED ON, Reverse motor forward rotation 867mm/s (reverse operatoin)
15) Document feed LED OFF, Document remain LED OFF, Reverse motor OFF
16) Document feed LED ON, Document remain LED ON, Reverse motor forward rotation 867mm/s (Pulling/paper exit operation)

17) Reverse motor speed reduction 867 → 297mm/s (Paper exit speed reduction)

18) Document feed LED OFF, Document remain LED OFF, Reverse motor OFF

19) Document feed LED ON, Document remain LED ON, Reverse motor forward rotation 867mm/s (Paper exit operation)

20) Reverse motor speed reduction 867 → 297mm/s (Paper exit speed reduction)

21) Document feed LED OFF, Document remain LED OFF, Reverse motor OFF

Kind of JAM, error	LED display
Paper feed motor lock error	REMOVE ORIGINAL LED blinks at the cycle of 2000msec.

Return to 1).

f. EEPROM initializing + all sensors adjustment mode

When the DIP switch is set (3, 5 to ON, 1, 2, 4 to OFF) the push switch is pressed, the EEPROM is initialized. At that time, the LED blinks at the cycle of 100msec.

After completion of EEPROM initializing, the LED turns ON. In case of an error in the EEPROM initializing, the LED blinks at the cycle of 2000msec.

Then all sensors adjustment is started. At that time, the document remain LED blinks at the cycle of 100msec. After completion of all sensors adjustment, the document remain LED turns ON. In case of an. Error in the all sensors adjustment, the document remain LED blinks at the cycle of 2000msec.

∗ Only when the EEPROM is successfully completed, the all sensors adjustment is performed.

Kinds of JAM, error	LED display
EEPROM initializing error	Ready LED blinks at the cycle of 2000msec.
All sensors adjustment error	Document remain LED blinks at the cycle of 2000msec

g. Resist sensor adjustment mode

Set the DIP switch (4, 5 to ON, 1, 2, 3 to OFF) and press the push switch. Each sensor adjustment is performed. At that time, the LED blinks at the cycle of 100msec.

After completion of the sensor adjustment, the LED turns ON. In case of an error in the sensor adjustment, the LED blinks at the cycle of 100msec.

Kinds of JAM, error	LED display
Sensor adjustment upper limit error	Document remain LED turns OFF. Ready LED blinks at the cycle of 100msec.
Sensor adjustment lower limit error	Document remain LED blinks at the cycle of 100msec. Ready LED turns OFF

∗ This mode can be adjusted with SIM 53-2.

h. Timing sensor adjustment mode

Set the DIP switch (1, 4, 5 to ON, 2, 3 to OFF) and press the push switch. Each sensor adjustment is performed. At that time, the LED blinks at the cycle of 100msec.

After completion of the sensor adjustment, the LED turns ON. In case of an error in the sensor adjustment, the LED blinks at the cycle of 100msec.

Kinds of JAM, error	LED display
Sensor adjustment upper limit error	Document remain LED turns OFF. Ready LED blinks at the cycle of 100msec.
Sensor adjustment lower limit error	Document remain LED blinks at the cycle of 100msec. Ready LED turns OFF

∗ This mode can be adjusted with SIM 53-2.

i. Paper exit sensor adjustment mode

Set the DIP switch (3, 4, 5 to ON, 1, 2 to OFF) and press the push switch. Each sensor adjustment is performed. At that time, the LED blinks at the cycle of 100msec.

After completion of the sensor adjustment, the LED turns ON. In case of an error in the sensor adjustment, the LED blinks at the cycle of 100msec.

Kinds of JAM, error	LED display
Sensor adjustment upper limit error	Document remain LED turns OFF. Ready LED blinks at the cycle of 100msec.
Sensor adjustment lower limit error	Document remain LED blinks at the cycle of 100msec. Ready LED turns OFF

∗ This mode can be adjusted with SIM 53-2.

(4) Kinds of error (RADF single mode only)

Kinds of JAM, error	LED display
Not-reaching/remaining JAM in the paper feed section	Document remain LED blinks at the cycle of 1000msec.
Not-reaching/remaining JAM in the paper exit section	Ready LED blinks at the cycle of 1000msec.
Paper feed motor lock error	Document remain LED blinks at the cycle of 2000msec.
Resist/timing sensor adjustment error (when power is supplied)	Document remain LED blinks at the cycle of 100msec.
Paper exit sensor adjustment error (when power is supplied)	Ready LED blinks at the cycle of 100msec.

A JAM/motor lock error can be canceled by opening/closing the ADF after jam recovery process or by applying the power again.

[Descriptive Conventions]

For the sake of keeping the use of information common among several models, this manual uses the following conventions:

AR-4XX: Refers to model AR-405,

AR-2X1/3X1/4XX/250/XX6: AR-281/286/405/250/336,

AR-2XX, 3XX: Refers to model AR-280/285/335 for this issue.

∗ The "X" stands for any numeral 0 to 9.

B. List

Code		Function (Purpose)
Main	Sub	
1	1	Used to check the operation of the scanner unit and its control circuit.
	2	Used to check the operatioin of sensors and detectors in the scanner section and the related circuit.
2	1	Used to check the operation of the RADF unit and its control circuit.
	2	Used to check the operation of sensors and detectors in the RADF units and the related circuit.
	3	Used to check the operation of the loads in the RADF/ADF/SPF units and the control circuits.
3	2	Used to check the operation of sensors and detectors in the sorter and the related circuit.
	3	Used to check the operation of the loads in the sorter and the control circuit.
	6	Used to adjust the finisher stacking capability. (Used to adjust the stop position of the finishser paper width direction alignment plate (jogger). This adjustment is made by changing the width direction alignment plate home position by the software.) (Target model:AR-S330/280/285/335)
4	2	Used to check the operation of sensors and detectors in the paper feed section (desk feed, large capacity tray) and the related circuit.
	3	Used to check the operation of the loads in the paper feed section (desk paper feed, large capacity tray) and the control circuits.
5	1	Used to check the operation of the display, LCD in the operation panel, and control circuit.
	2	Used to check the operation of the heater lamp and the control circuit.
	3	Used to check the oepration of the copy lamp and the control circuit.
	4	Used to check the operation of the discharge lamp and the control circuit.
6	1	Used to check the oepration of the loads (clutches and solenoids) in the paper transport system and the control circuit.
	2	Used to check the operation of each fan motor and its control circuit.
7	1	Used to set the aging operation conditions.
	6	Used to set the cycle of intermittent aging.
	8	Used to set YES/NO of display of the warmup time.
8	1	Used to check and adjust the operation of the developing bias voltage in each print mode and the control circuit. (for OPC drum type B)
	2	Used to check and adjust the operation of the main charger grid voltage in each print mode and the control circuit. (for OPC drum type B)
	6	Used to check and adjust the transfer charger current and the control circuit.
	7	Used to check and adjust the operation of the separation charger voltage and its control circuit.
9	1	Used to check the operation of the loads (clutches and solenoids) in the duplex section and the control circuit.
	2	Used to check the operation of sensors and detectors in the duplex section and the control circuit.
	4	Used to check the operation of the duplex unit alignment plate and its control circuit.

Code		Function (Purpose)
Main	Sub	
10	0	Used to check the operation of the toner motor and its control circuit. (Note) Do not execute this simulation with toner in the toner hopper. If executed, excessive toner may enter the developing section, causing an overtoner trouble. Be sure to remove the toner motor from the toner hopper before executing this simulation.
13	0	Used to cancel the self diag U1 trouble.
14	0	Used to cancel the self diag U1/LOC/U2/PF troubles.
15	0	Used to cancel the self diag U4 - 09/20/21/22 (large capacity tray) trouble.
16	0	Used to cancel the self diag U2 trouble.
17	0	Used to cancel copy inhibition by the host computer during the self diag PF.
21	1	Used to set the maintenance cycle.
22	1	Used to check the print out count of each section in each operation mode. (Used to check the maintenance timing.)
	2	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
	3	Used to check the misfeed positions and the number of misfeed in each position. (If the number of misfeed is considerably great, it can be judged as necessary for repair.) (Sections other than ADF/RADF/SPF sections)
	4	Used to check the total trouble (self diag) history.
	5	Used to check the ROM version of each unit (section).
	6	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
	7	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
	8	Used to check the number of use of the staple, the ADF, RADF, SPF, and scanning.
	9	Used to check the number of use of each paper feed section. (the number of prints)
	10	Used to check the system configuration (option, internal hardware).
	11	Used to check the use frequency of FAX (send/receive). (FAX model only)
	12	Used to check the misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, is can be judged as necessary for repair.)
24	1	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
	2	Used to clear the number of use (the number of prints) of each paper feed section.
	3	Used to clear the data of the number of use of the staple, the ADF, RADF, SPF and scanning.
	4	Used to reset the maintenance counter.
	5	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)
	6	Used to reset the copy counter.
	7	Used to clear the OPC drum (membrane decrease) correction counter. (This simulation is executed when the OPC drum is replaced.
	8	Used to clear the Zaurus print counter.

Code		Function (Purpose)
Main	Sub	
24	9	Used to clear the printer print counter. (The counter is cleared after completion of maintenance.)
	10	Used to clear the FAX counter. (The counter is cleared after completion of maintenance.) (FAX model only)
25	1	Used to check the operation of the main drive (excluding the scanner section) amd to check the operation of the toner concentration sensor. (The toner concentration sensor output can be monitored.)
	2	Used to make the initial setting of toner concentration when replacing developer.
26	1	Used to set options. (This simulation is used to make option setting when an option is installed.)
	2	1) Used to set the paper size of the large quantity paper tray. (When the paper size is changed, the lift paper size must be also changed with this simulation.) 2) Used to detect the paper or document size of 8.5" x 13" (Inch series) and set the display mode. (All paper feed modes)
	3	Used to set the specifications of the auditor. Setting must be made depending on the use condition of the auditor.
	5	Used to set the count mode of the total counter and the maintenance counter.
	6	Used to set the specifications depending on the destination.
	15	Used to set the fusing operation mode (paper curl corresponding mode).
	18	Used to set VALID/INVALID of toner save operation. (This simulation is valid only in the Japan and UK versions. (It depends on SIM 26-6 (Destination setting). For the other destinations, the same setting can be executed with theuser program.)
	22	Used to set the specification (language display) for the destination. (Excluding the Japan models.)
	30	Used to set the CE mark conforming operation mode. (For flickers when driving the fusing heater lamp.)
	35	Used to set whether the trouble history display of SIM 22-4 is displayed as one trouble or as the number of continuous troubles when two or more troubles of a same kind occured.
	36	Used to set the ICU fan operating temperature. (Operation in the pre-heat mode.) (Excluding Japan models.)
	41	Used to enable/disable the auto magnification ratio select (AMS) function in the pamphlet copy mode.
	44	Used to set the model of the unit which is connected to the SCSI I/F of ICU PWB.
27	1	Used to set the operation specifications when a communication trouble occurs between the host computer and MODEM (on the copier). (When a communication trouble occurs between the host computer and MODEM (copier), the self diag display (U7-00) is printed and setting is made to select inhibit/allow of printing.)
	2	Used to set and change the host computer/MODEM numbers. (This setting is required when a communication is made between the copier and a computer through MODEM.)
	3	Used to set and change the ID numbers of the copier and the host computer/MODEM numbers. (This setting is required when a communication is made between the copier and a computer through MODEM.)
	4	Used to enter the start time and the end time of servicing for management of service work. (The data can be checked by the host computer.)
	5	Used to enter the TAG No. of the copier. (This simulation allows to check the machine TAG No. with the host computer.)
30	1	Used to check the operation of sensors and detectors in the paper feed section, the paper transport section, and the paper exit section, and the related circuit.
	2	Used to check the operation of sensors and detectors in the paper feed section and the related circuits. (The operations of sensors and detectors in the paper feed section can be monitored with the LCD.)

Code		Function (Purpose)
Main	Sub	
40	1	Used to check the operation of the manual paper feed tray paper size detector and the related circuit. (The operation of the manual paper feed tray paper size detector can be monitored with the LCD.)
	2	Used to adjust the manual paper feed tray paper width detector detection level.
41	1	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD.)
	2	Used to adjsut the document size sensor detection level.
	3	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD.)
43	1	Used to set the fusing temperature in each operation mode.
44	1	Used to set whether the correction functions of the image forming (process) section are valid or not.
	2	Used to adjust the sensitivity (gain) of the OPC drum mark sensor and the image density sensor.
	4	Used to set the target image (reference) density level in the developing bias voltage correction. (for OPC drum type B)
	5	Used to set various parameters (main charger grid voltage, laser beam power, correction start developing bias voltage) in developing bias correction. (for OPC drum type B)
	9	Used to check the data on the result of the image forming section correction (process correction) (the corrected main charger grid voltage in each print mode, developing bias voltage, the laser power, etc.) (This simulation allows to check whether the correction is executed properly or not.)
	12	Used to check the toner image patch density date in correction operation of the image forming section. (This simulation allows to check whether the correction is executed properly or not.)
	15	Used to set the correction vlaues of various parameters (maincharger grid voltage, laser beam power, developing bias voltage) in the image forming operation and image forming section correction for OPC drum type A.
46	2	Used to adjust the copy density in the copy mode (binary/multi-value - auto, character and photo, photo mode). (The overall print density in each mode (all of the specified density set for each density level (display value)) can be adjusted in each mode.)
	3	Used to adjust the copy density in the copy mode (multi value-auto, character and photo, photo mode). (The overall print density in each mode (all of the specified density set for each density level (display value)) can be adjusted in each mode.) (AR-230/280/285/330/335 series only)
	5	Used to adjust the print density for each density level (display value) in the copy mode (multi character mode). An arbitrary print density can be set for each density level (display value). (AR-230/280/285/330/335 series only)
	6	Used to adjust the print density for each density level (display value) in the copy mode (multi value-character, photo mode). An arbitrary print density can be set for each density level (display value). (AR-230/280/285/330/335 series only)
	7	Used to adjust the print density for each density level (display value) in the copy mode (multi value - photo mode). (Japan only)
	9	Used to adjust the print density for each density level (display value) in the copy mode (binary - character mode).
	10	Used to adjust the print density for each density level (display value) in the copy mode (binary - character, photo mode). An arbitrary print density can be set for each density level (display value).

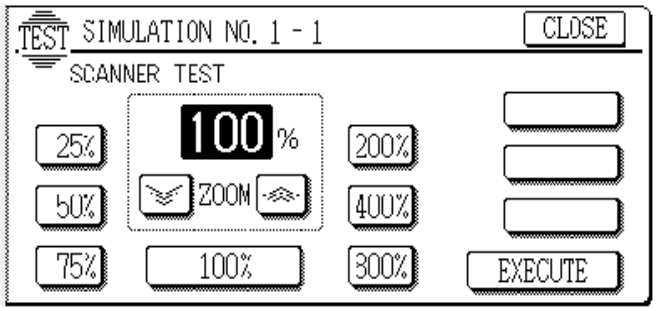
Code		Function (Purpose)
Main	Sub	
46	11	Used to adjust the print density for each density level (display value) in the copy mode (binary - photo mode). An arbitrary print density can be set for each density level (display value).
	12	Used to adjust the print density in the FAXmode (all modes). The print densities in all the modes (all the specified levels set for all the density levels (display values)) can be collectively adjusted. (Same as SIM 46-13A.) (FAX model only)
	13	Used to adjust the print density in the FAX mode (normal character mode). (SIM 46-13A is same as SIM 46-12.) (FAX model only)
	14	Used to adjust the print density in the FAX mode (small character modes). (FAX model only)
	15	Used to adjust the print density in the FAX mode (fine modes). (FAX model only)
	16	Used to adjust the print density in the FAX mode (ultra fine modes). (FAX model only)
	17	Used to execute shading correction and display the correction value.
	18	Used to adjust γ (density gradient) in each copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
	19	Used to adjust γ (density gradient) and set the density detection area in the auto copy mode and to set the image process mode in the photo copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
	20	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. Adjustment is made so that the copy density is the same as that in the document table copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
48	1	Used to adjust the copy magnification ratio (main scanning direction, sub scanning direction).
50	1	Used to adjust the copy image position and the void area (image loss) on the print paper in the copy mode. (The same adjustment can be made with SIM 50-2 (simple method).)
	2	Used to adjust the copy image position and the void area (image loss) on the print paper in the copy mode. (Simple adjustment) (This simulation allows the same simulation with SIM 50-1 more simply.)
	5	Used to adjust the print image position (top margin) on the print paper in the print mode.
	10	Used to adjust the print image center position. (Adjustment can be made for each paper feed section.)
	12	Used to adjust the print image center position. (Adjustment can be made for each document mode.)
51	1	Used to adjust the OPC drum separation pawl ON timing.
	2	Used to adjust the contact pressure of paper onto the resist roller in each section (copier paper feed section, duplex paper feed section, SPF paper feed section). (When the print image position varies greatly for the paper or when a lot of paper jam troubles occur, the adjustment is required.)
52	1	Used to adjust the duplex print mode stacking capability. (Used to adjust the stop position of the paper tray width direction alignment plate in the duplex unit. The adjustment is executed by changing the width direction alignment plate home position inthe software.)
53	1	Used to adjust the document stop position in each operation mode of ADF/RADF. (Target model: AR-F230/S280/F280R/S330/280/285/335)
	2	Used to adjust the optical sensor sensitivity in the ADF/RADF. (Target models: AR-F230/S280/F280R/S330/280/285/335)
60	1	Used to check the operation (read/write) of ICU (DRAM). (SIMM MEMORY/ONBOARD MEMORY)

Code		Function (Purpose)
Main	Sub	
61	1	Used to test the operation of the scanner (exposure) unit.
	2	Used to adjust the scanner (exposure) laser power (absolute value) in the copy mode.
	3	Used to adjust the scanner (exposure) laser power (absolute value) in the FAX (auto) mode. (FAX model only)
	4	Used to adjust the scanner (exposure) laser power (absolute value) in the printer mode. (For Photoconductor type B)
62	1	Used to format the hard disk. (Target models: AR-S330/280/285/335)(Models with the hard disk installed only)
	2	Used to check the operation (read/write) of the hard disk. (Target models: AR-S330/280/285/335)(Models with the hard disk installed only.) (Partial check)
	3	Used to check the operation (read/write) of the hard disk. (Target models: AR-S330/280/285/335) (Only the models with a hard disk) (All area check)
63	1	Used to check the result of shading correction. (The shading correctiondata are displayed.)
64	1	Used to check the operation of the printer function (auto print operation). (Print pattern, paper feed mode, print mode, the number of sheets, and the density can be set to an arbitrary value.)
65	1	Used to adjust the touch panel (LCD display) detecting position.
	2	Used to check the result of the touch panel (LCD display) detecting position adjustment. (The coordinates are displayed.)
66	35	Used to check the communication test between the FAX main PWB and the sub PWB. (FAX model only)
	36	Used to check the FAX sub PWB memory operation (read/write). (When replacing the PWB with a new one, this check must be performed.)(FAX model only)
67	1	Used to check the printer PWB memory operation (read/write). (When replacing the PWB with a new one, this check must be performed.)
	2	Used to check the printer parallel I/F operation. (This simulation is used only for production, and a special tool is required. Not available in the market.)
	3	Used to adjust the printer parallel I/F ACk signal width.
	11	Used to set YES/NO of the printer parallel I/F SELECT IN signal.
	12	Used to write data into the printer flash memory.
	13	Used to check the printer flash memory data.
	14	Used to check the printer flash memory data writing and its result.
	15	Used to check the sum of the printer flash memory.
	16	Used to check the operation of the network card.
	17	Used to clear data in the NVRAM of the printer PWB (set to the default). (Printer set data)
68	1	Used to check the operation of infrared communication I/F (Zaurus link) and the related circuit. (Target models: AR-F230/S280/F280S/F280R/S330)(Japan models only)

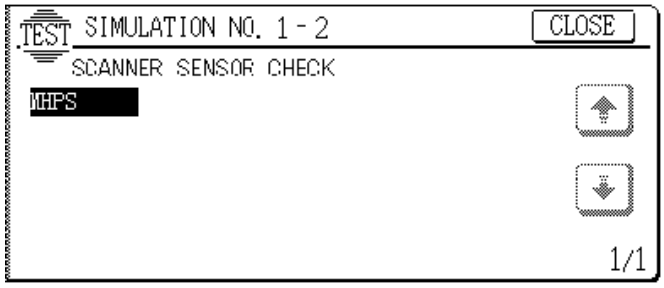
C. Details of simulations

1

1 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the scanner unit and its control circuit.
	Section	Optical (Image scanning)
	Item	Operation
	Operation/ Procedure	1. Select the copy (scanning) magnification ratio with the zoom key. The magnification ratio can be increased or decreased with the [ZOOM] key by the increment of 1%. The selected magnification ratio is displayed on the magnification ratio display. 2. Press the [EXECUTE] key. Scanning is performed at the magnification ratio set in procedure 1 is executed. During scanning, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the operation is interrupted. After completion of scanning, the [EXECUTE] key returns to the normal display. To resume scanning, start with procedure 2. To change the magnification ratio, start with procedure 1. Scanning is performed at the max. scanning length (432mm). If, however, the magnification ratio is set to greater than 100%, the scanning length is changed accordingly.
	Note	



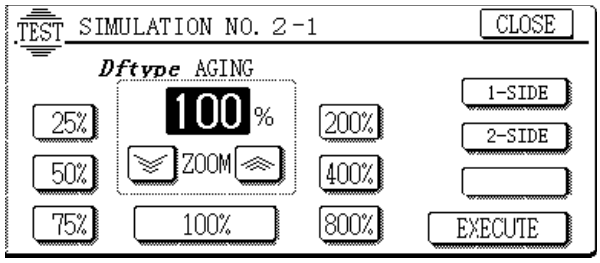
1 - 2	Purpose	Operation test/check
	Function (Purpose)	Used to check the operatioin of sensors and detectors in the scanner section and the related circuit.
	Section	Optical (Image scanning)
	Item	Operation
	Operation/ Procedure	The operations of sensors and detectors in the scanner section are displayed. The active sensors and detectors are highlighted.
	Note	



2

2 - 1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the RADF unit and its control circuit.
Section	ADF/RADF/UDH/SPF
Item	Operation
Operation/ Procedure	1. Select the aging mode with the key. When selection is made, the selected item is highlighted. [1:SIDE]: Single copy aging mode [2:SIDE] Duplex copy aging mode (Note) [2:SIDE] is displayed only when the unit which allows duplex copy is installed. 2. Select the copy magnification ratio with the key. (The magnification ratio can be increased or decreased in the increment of 1% with the [ZOOM] key.) The selected magnification ratio is displayed on the magnification ratio display on the screen. The magnification ratio can be set only when SPF is installed. 3. Press the [EXECUTE] key. Aging of the document feeder is executed under the conditions specified with procedures 1 and 2. During aging, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is interrupted. When two or more operations are selected in procedure 1, "1:SIDE" (single copy aging mode) is unconditionally performed and the other highlighted displays return to the normal display. To resume aging, execute with procedure 3. To change the conditions for aging, execute with procedure 1. ∗ When the SPF is installed , the magnification ratio can be adjusted in the range of 64% - 200%.
Note	



2 - 2

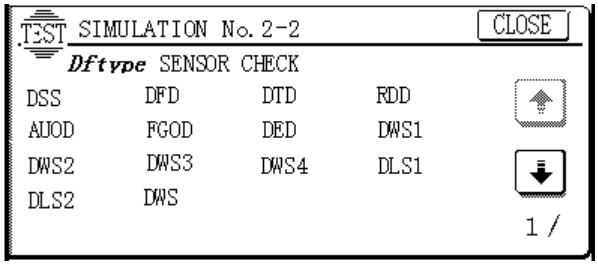
Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the RADF units and the related circuit.
Section	ADF/RADF/UDH/SPF
Item	Operation
Operation/ Procedure	The operations of sensors and detectors in the RADF/ADF/SPFsection are displayed. The active sensors and detectors are highlighted.

[ADF/RADF installed]

DSS	Empty sensor	Normal display: Document empty	Highlighted: display: Document exist
DFD	Resist sensor	Normal display: Document empty	Highlighted display: Document exist
DTD	Paper timing sensor	Normal display: Document empty	Highlighted display: Document exist
AUOD	DF open/close sensor	Normal display: Close	Highlighted display: Open
TSS1	Tray feed size sensor (large size)	Normal display: Document empty	Highlighted display: Document exist
TSS2	Tray feed size sensor (small size)	Normal display: Document empty	Highlighted display: Document exist
DWS1	Tray width sensor (182mm)	Normal display: OFF	Highlighted display: ON
DWS2	Tray width senso (210mm/215.9mm)	Normal display: OFF	Highlighted display: ON
DWS3	Tray width sensor (257mm)	Normal display: OFF	Highlighted display: ON
DWS4	Tray width sensor (279.4mm)	Normal display: OFF	Highlighted display: ON
DWS5	Tray width sensor (297mm)	Normal display: OFF	Highlighted display: ON
RDD	Paper exit sensor	Normal display: OFF	Highlighted display: ON

[SPF installed]

DSS empty sensor	Normal display: Document empty	Highlighted display: Document exist
DFD resist sensor	Normal display: Document empty	Highlighted display: Document exist
RDD paper exit sensor	Normal display: Document empty	Highlighted display: Document exist
AUOD DF open/close sensor	Normal display: Close	Highlighted display: Open
TSS1 tray feed size sensor (large size)	Normal display: Document empty	Highlighted display: Document exist
TSS2 tray feed size sensor (small size)	Normal display: Document empty	Highlighted display: Document exist
DWS1 tray width sensor (182mm)	Normal display: OFF	Highlighted display: ON
DWS2 tray width sensor (210mm/215.9mm)	Normal display: OFF	Highlighted display: ON
DWS3 tray width sensor (257mm)	Normal display: OFF	Highlighted display: ON
DWS4 tray width sensor (279.4mm)	Normal display: OFF	Highlighted display: ON
DWS5 tray width sensor (297mm)	Normal display: OFF	Highlighted display: ON



Note	

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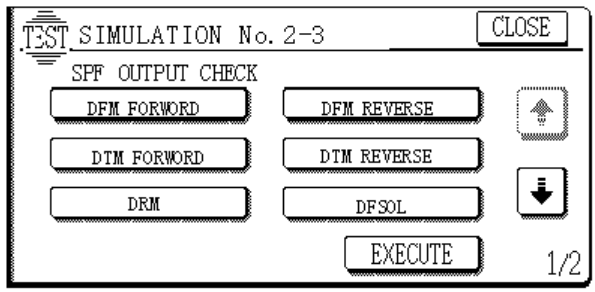
2 - 3	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the loads in the RADF/ADF/SPF units and the control circuits.
	Section	ADF/RADF/UDH/SPF
	Item	Operation
	Operation/ Procedure	1. The names of the loads which can be operated are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The load selected in procedure 1 starts the operation. During the operation of the load, the [EXECUTE] key is highlighted. If the EXECUTE key is pressed while it is highlighted, the operation is stopped. When two or more operations are selected in procedure 1, the operation is performed in the sequence of display order.

[When ADF/RADF is installed]

DFM	FORWORD Paper feed motor forward rotation
DFM	REVERSE Paper feed motor reverse rotation
DTM	FORWORD Transport motor forward rotation
DTM	REVERSE Transport motor reverse rotation
DRM	Paper expulsion motor
DFSOL	Paper feed solenoid

[When SPF is installed]

DTM	FORWORD	Transport motor forward rotation
DTM	REVERSE	Transport motor reverse rotation
STAMP	SOL	Stamp solenoid



Note	

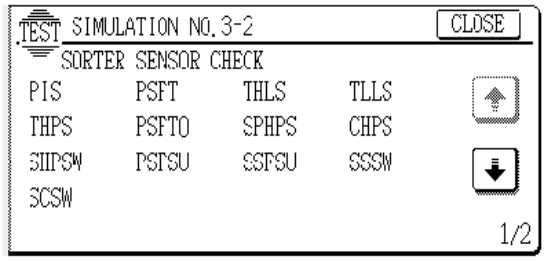
3

3 - 2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the sorter and the related circuit.
Section	Sorter/Finisher
Item	Operation
Operation/ Procedure	The display differs depending on the unit (sorter, finisher) installed. The operations of the sensors and detectors in the sorter and the finisher section are displayed. The active sensors and detectors are highlighted.

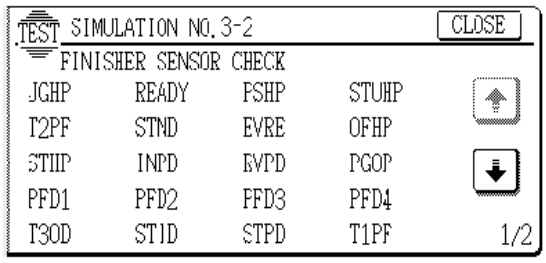
In the case of AR-SS1

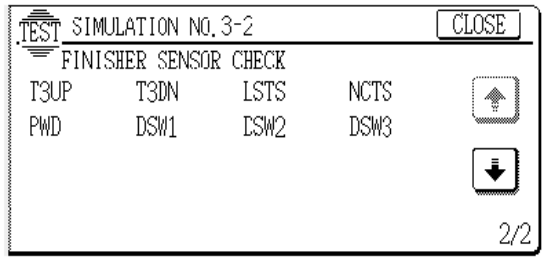
PIS	Paper entry port sensor	CHPS	Holder home sensor
PSFT	Paper empty sensor	SHPSW	Stapler home switch
THLS	Upper limit sensor	PSFSU	Stapler paper sensor
TLLS	Lower limit sensor	SSFSU	Stapler empty sensor
THPS	Bin home sensor	SSSW	Joint section door sensor
PSFT0	Take-out position sensor	SCSW	Staple unit section door sensor
SPHPS	Alignment rod home sensor		



In the case of AR-FN1

JGHP	Jogger motor home sensor	PFD3	Transport sensor 3
READY	Stapler self priming sensor	PFD4	Transport sensor 4
PSHP	Pusher motor home sensor	T3OD	Tray 3 paper exit sensor
STUHP	Staple unit home sensor	STID	Staple tray paper entry sensor
T2PF	Tray 2 paper full sensor	STPD	Staple paper sensor
STND	Stapler replacement sensor	T1PF	Tray 1 paper full sensor
EVRE	Elevator motor encoder	T3UP	Tray 3 upper limit sensor
OFHP	Offset home sensor	T3DN	Tray 3 lower limit sensor
STHP	Staple home sensor	LSTS	Stapler sensor
INPD	Paper entry sensor	NCTS	Staple cartridge sensor
RVPD	Reverse paper exit sensor	PWD	Power off detection
PGOP	Upper transport PG open/close sensor	DSW1	Copier connection detection
PFD1	Transport sensor 1	DSW2	Top door open/close detection
PFD2	Transport sensor 2	DSW3	Front door open/close detection



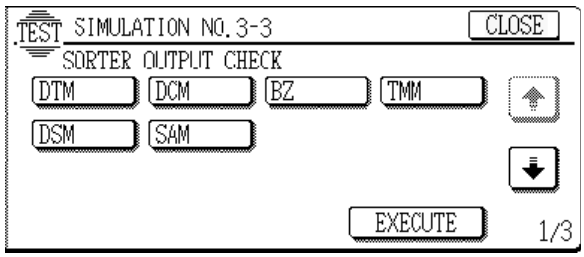


Note

3 - 3		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the loads in the sorter and the control circuit.
	Section	Sorter/Finisher
	Item	Operation
	Operation/ Procedure	The display differs depending on the unit (sorter, finisher) which is installed. 1. The names of the loads which can be operated are displayed. The selected load is highlighted. 2. Press the [EXECUTE] key, and the selected load is operated. During the operation of the load, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed when it is highlighted, the operation is interrupted.

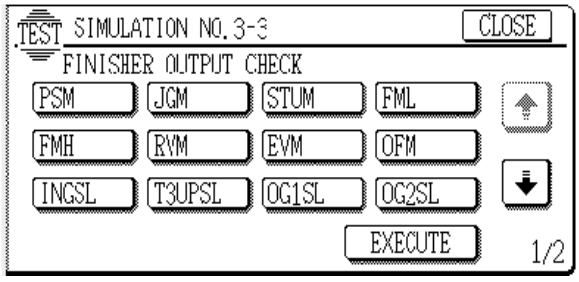
In the case of AR-SS1

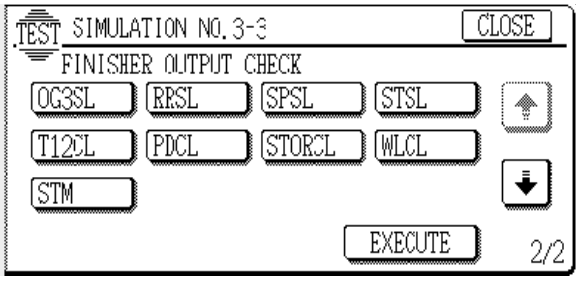
DTM	Transport motor
DCM	Holder motor
BZ	Buzzer
TMM	Bin shift motor
DSM	Alignment motor
SAM	Stapler drive motor



In the case of AR-FN1

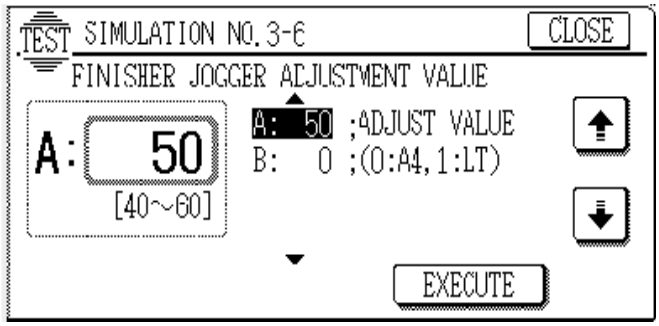
PSM	Pusher motor	OG2SL	Paper exit gate 2 solenoid
JGM	Jogger motor	OG3SL	Paper exit gate 3 solenoid
STUM	Staple unit shift motor	RRSL	Reverse roller pressure release solenoid
FML	Main drive motor low transport speed	SPSL	Short path select solenoid
FMH	Main drive motor high transport speed	STSL	ST paper holding solenoid
RVM	Reverse motor	T12CL	Tray 1 and tray 2 speed reduction clutch
EVM	Elevator motor	PDCL	Paddler clutch
OFM	Offset motor	STOPCL	ST paper exit roller pressure clutch
INGSL	Paper entry gate solenoid	T3SLCL	Tray 3 speed reduction clutch
T3UPSL	Tray 3 upper limit solenoid	STM	Staple motor
OG1SL	Paper exit gate 1 solenoid	T3ORSL	Tray 3 normal speed clutch





Note	

3 - 6		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust the finisher stacking capability. (Used to adjust the stop position of the finishser paper width direction alignment plate (jogger). This adjustment is made by changing the width direction alignment plate home position by the software.) (Target model:AR-S330/280/285/335)
	Section	Sorter/Finisher
	Item	Operation
	Operation/ Procedure	1. Select B mode with [↑] and [↓] keys. 2. Select the paper size by entering the numbers (0 or 1) with the 10-key pad. 3. Select A mode with [↑] and [↓] keys. 4. Enter the adjustment value with the 10-key pad. 5. Press the [EXECUTE] key. The value entered in procedure 4 is set. The finisher's jogger starts operation. During operation, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the load operation is interrupted.

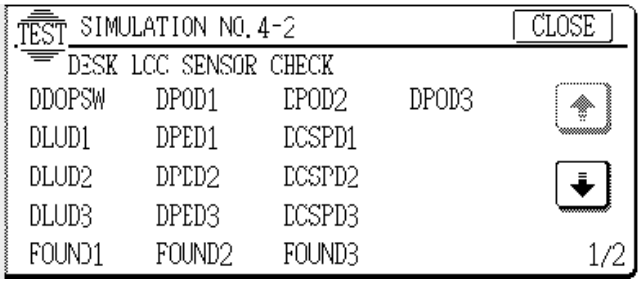


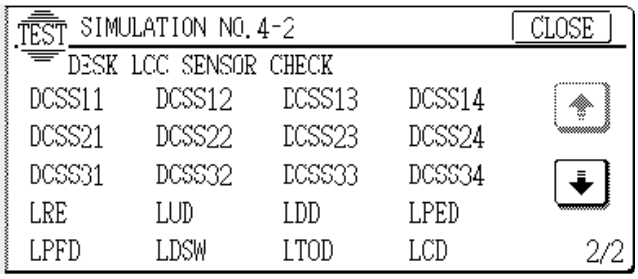
	Note	

4

4 - 2		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section (desk feed, large capacity tray) and the related circuit.
	Section	Paper transport
	Item	Operation
	Operation/ Procedure	The operating conditions of the sensors and detectors in the paper feed section are displayed. The active sensors and detectors are highlighted.

Desk Unit Sensor		LCC Unit Sensor	
DDOPSW	Door open sensor	LRE	Remaining quantity sensor
DPOD1	Paper exit transport sensor 1cs	LUD	Upper limit sensor
DPOD2	Paper exit transport sensor 2 cs	LDD	Lower limit sensor
DPOD3	Paper transport sensor 3cs	LPED	Paper empty sensor
DLUD1	1cs Lift upper limit sensor	LPFD	Paper exit sensor
DPED1	1cs Paper empty sensor	LDSW	Door open SW
DCSPD1	1cs remaining quantity detection 1	LTOD	Body connection sensor
DLUD2	2xs lift upper limit sensor	LCD	Cassette detection line
DPED2	2cs paper empty sensor	LLSW	Upper limit switch.
DCSPD2	2cs remaining quantity detection 1		
DLUD3	3cs lift upper limit sensor		
DPED3	3cs paper empty sensor		
DCSPD3	3cs remaining quantity detection 1		
FOUND1	1cs lift unit detection (Installation detection)		
FOUND2	2cs lift unit detection (Installation detection)		
FOUND3	3cs lift unit detection (Installation detection)		
DCSS11	1cs size detection 0		
DCSS12	1cs size detection 1		
DCSS13	1cs size detection 2		
DCSS14	1cs size detection 3		
DCSS21	2cs size detection 0		
DCSS22	2cs size detection 1		
DCSS23	2cs size detection 2		
DCSS24	2cs size detection 3		
DCSS31	3cs size detection 0		
DCSS32	3cs size detection 1		
DCSS33	3cs size detection 2		
DCSS34	3cs size detection 3		





Note	

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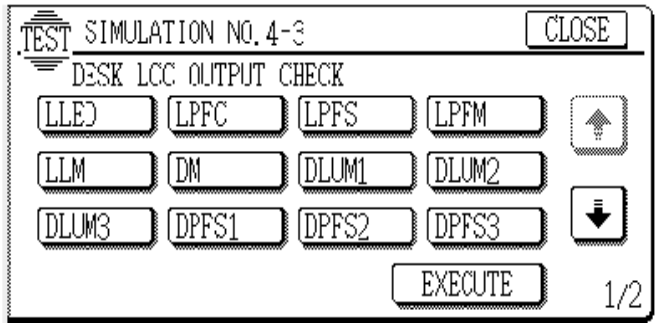
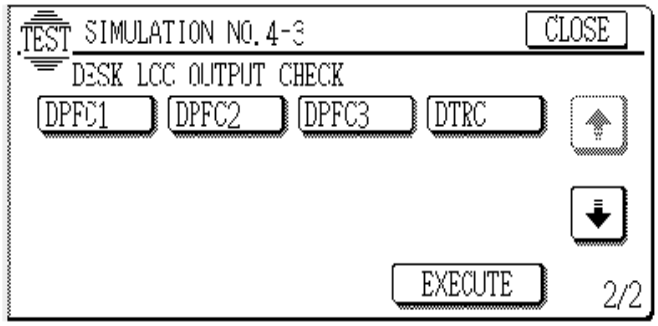
4 - 3		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the loads in the paper feed section (desk paper feed, large capacity tray) and the control circuits.
	Section	Paper transport
	Item	Operation
	Operation/ Procedure	1. The names of the loads which can be operated are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The load selected in procedure 1 starts the operation. During the operation of the load, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is stopped.

Desk Unit Output		Lcc Unit Output	
DM	Transport motor	LLED	Dorr open LED
DLUM1	Lift up motor 1	LPFC	Paper feed clutch
DLUM2	Lift up motor 2	LPFS	Paper feed solenoid
DLUM3	Lift up motor 3	LPFM	Transport motor
DPFS1	Paper feed solenoid 1	LLM	Lift motor
DPFS2	Paper feed solenoid 2		
DPFS3	Paper feed solenoid 3		
DPFC1	Paper feed clutch 1		
DPFC2	Paper feed clutch 2		
DPFC3	Paper feed clutch 3		
DTRC	Transport clutch		

The LCC unit lit motor continues lifting up and falling down



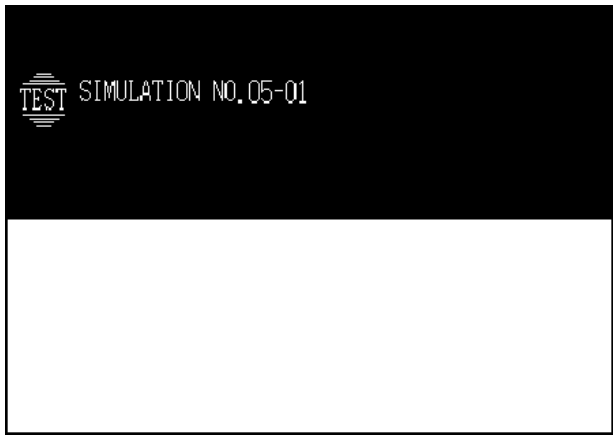


Note	

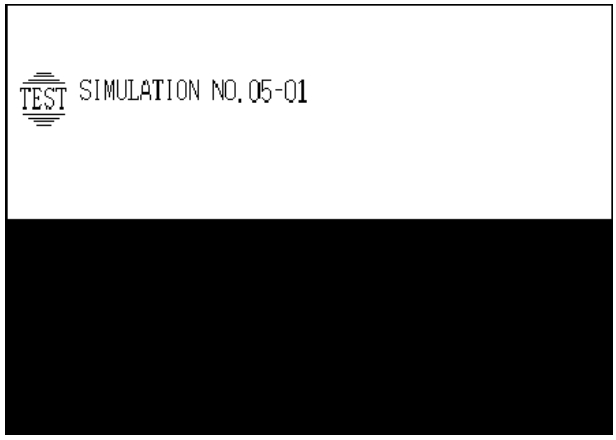
5

5 - 1		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the display, LCD in the operation panel, and control circuit.
	Section	Operation (Display/Operation key)
	Item	Operation
	Operation/ Procedure	The LCD shows the following message. (The contrast changes in the sequence of Current level → MAX → MIN → Current level → MAX → MIN in every 2sec.)

During that period, each LED is lighted for 12sec.



↓ 2.0sec.



Note	

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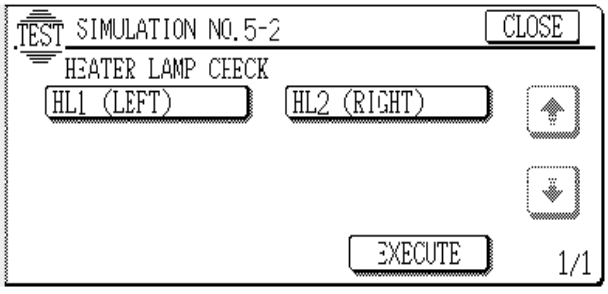
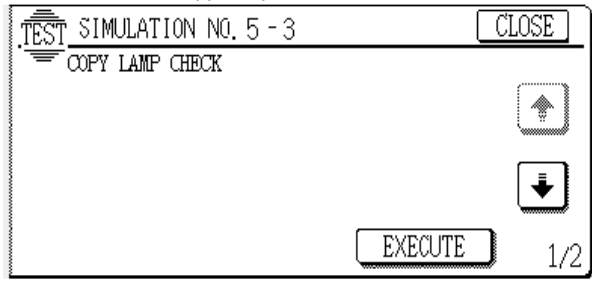
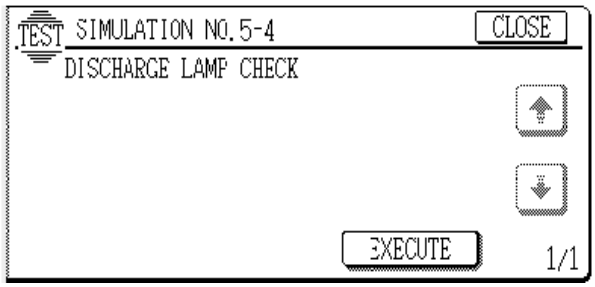
5 - 2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the heater lamp and the control circuit.
Section	Fixing (Fusing)
Item	Operation
Operation/ Procedure	1. Select the lamp to be checked with the key. 2. Press the [EXECUTE] key. The selected heater lamp repeats ON/OFF in the frequency of 500msec 5 times. Then the [EXECUTE] key returns to the original display. When the [EXECUTE] key is pressed during ON/OFF operation of the heater lamp, the heater lamp is turned OFF and the [EXECUTE] key returns to the original display. HL1 (LEFT): This lamp is on the left when viewed from the front and it heats the center of the lamp. HL2 (RIGHT): This lamp is on the right when viewed from the front and it heats both ends of the lamp.



Note	

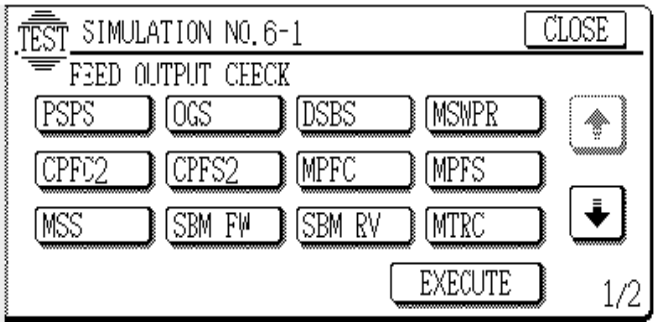
5 - 3	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the copy lamp and the control circuit.
	Section	Optical (Image scanning)
	Item	Operation
	Operation/ Procedure	When the [EXECUTE] key is pressed, the copy lamp is lighted for 10 sec. While the copy lamp is lighted, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the lamp is turned OFF. After 10 sec, the copy lamp is turned OFF. At that time, the [EXECUTE] key returns to the normal display. 
	Note	

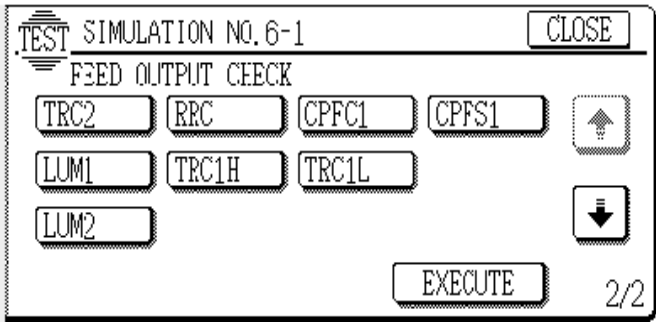
5 - 4	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the discharge lamp and the control circuit.
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning) Others
	Item	Operation
	Operation/ Procedure	When the [EXECUTE] key is pressed, the key is highlighted and the discharge lamp is lighted. After 30 sec of lighting, the lamp is turned OFF and the [EXECUTE] key returns to the normal display. If the [EXECUTE] key is pressed while the lamp is lighted, the lamp is turned OFF and the [EXECUTE] key returns to the normal display. 
	Note	

6

6 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the oepration of the loads (clutches and solenoids) in the paper transport system and the control circuit.
	Section	Paper transport (Discharge/Switchback/Transport)
	Item	Operation
	Operation/ Procedure	1. The names of the loads which can be operated are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The selected load starts the operation. During the operation of the load, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed while it is highlighted, the operation is stopped.

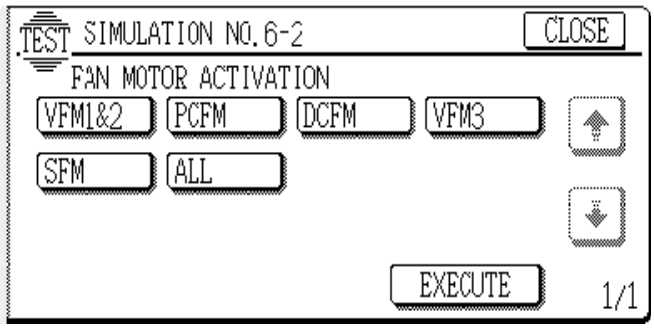
CPFC1	Upper cassette paper feed clutch
CPFS1	Upper cassette paper feed solenoid
LUM1	Lower cassette lift up motor
CPFC2	Lower cassette paper feed clutch
CPFS2	Lower cassette paper feed solenoid
MPFC	Manual paper feed clutch
MPFS	Manual paper feed solenoid
MSS	Manual paper entry gate solenoid
TRC1H	Transport clutch 1 high speed
TRC1L	Transport clutch 1 low speed
MTRC	Transport clutch low speed
TRC2	Transport clutch 2 high speed
RRC	Resist roller clutch
OGS	Paper exit gate solenoid
DSBS	Duplex unit paper entry switchback gate solenoid
PSPS	Separation pawl operation solenoid
SBM FW	Switchback motor forward rotation
SBM RV	Switchback motor reverse rotation





Note	

6 - 2	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of each fan motor and its control circuit.
	Section	Others
	Item	Operation
	Operation/ Procedure	1. The names of the loads which can be operated are displayed. Select the load to be checked with the key, and the selected load is highlighted. 2. Press the [EXECUTE] key. The key is highlighted and the selected fan motor is rotated. If the [EXECUTE] key is pressed while the fan motor is rotating, the [EXECUTE] key returns to the normal display and the fan motor is stopped. To operate or stop each fan motor, press the key of the fan motor. However, [CFM Low] key and [CFM High] key cannot be pressed ON simultaneously.



Note	

7

7 - 1

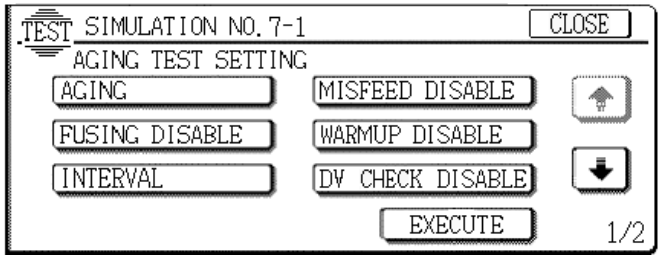
Purpose	Setting/Operation test/check
Function (Purpose)	Used to set the aging operation conditions.
Section	
Item	Operation
Operation/ Procedure	1. Press each corresponding key to set for the aging operation. (Set items of each key)

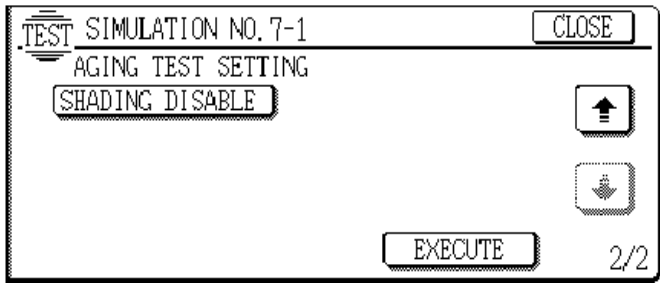
[AGING]	Aging setting
[MISFEED DISABLE]	Jam detection enable/disable setting
[FUSING DISABLE]	Fusing operation enable/disable setting
[WARMUP DISABLE]	Warm-up save setting
[INTERVAL]	Intermittent setting (Valid only in [AGING] setting)
[DV CHECK DISABLE]	Developing unit detection enable/disable setting
[SHADING DISABLE]	Shading enable/disable setting

The selected key is highlighted.

2. Press the [EXECUTE] key.
   Aging is set and the display returns to the simulation main code entry display.

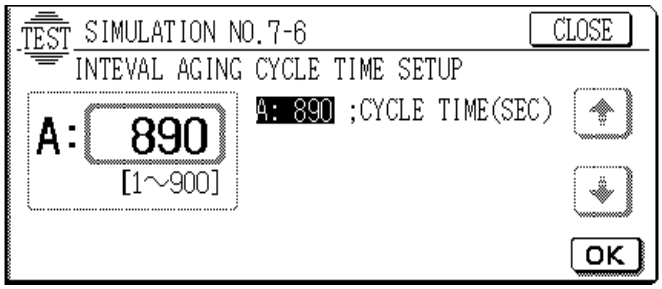
∗ When this simulation is executed, the machine resumes operation regardless of setting (changing) of aging.





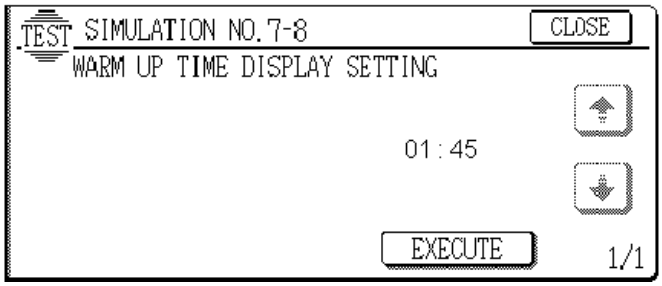
Note	

7 - 6		
	Purpose	Setting/Operation test/check
	Function (Purpose)	Used to set the cycle of intermittent aging.
	Section	
	Item	Operation
	Operation/ Procedure	1. Enter the interval aging cycle time (sec) with the 10-key pad. 2. Press [OK] key to set the entered cycle time.

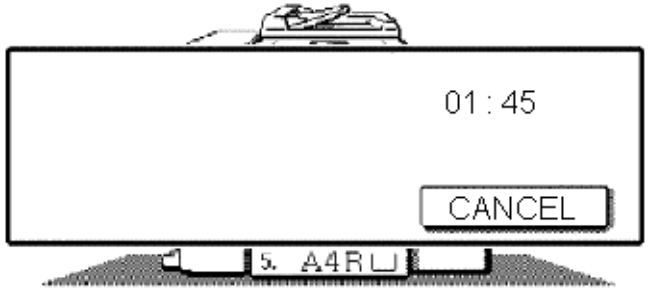


	Note	

7 - 8		
	Purpose	Setting/Operation test/check
	Function (Purpose)	Used to set YES/NO of display of the warmup time.
	Section	
	Item	Operation
	Operation/ Procedure	Press the [EXECUTE] key to set the warmup time display. When the [EXECUTE] key is pressed, the warmup time display setting is executed and the display returns to the simulation main code entry display. ∗ When this simulation is canceled after completion of it, the machine resumes operation regardless of setting (changing) of warmup time display.



After completion of warming up, the warm-up time is displayed.



	Note	

8

8 - 1

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operation of the developing bias voltage in each print mode and the control circuit. (for OPC drum type B)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	
Operation/ Procedure	(The developing bias output voltage in each of the following print modes can be adjusted and checked.)

AUTO	: Auto mode	* (500) (–500V ±5V)
CHARA	: Character mode	* (500) (–500V ±5V)
CHARA PHOTO	: Character/Photo mode	* (500) (–500V ±5V)
PHOTO	: Photo mode	* (500) (–500V ±5V)
TONER SAVE	: Toner save mode	* (500) (–500V ±5V)
PRINTER	: Printer mode	* (500) (–500V ±5V)
FAX	: FAX mode	* (500) (–500V ±5V)
PLUS	: Cleaning mode developing bias voltage	* (150) (+150V ±5V)

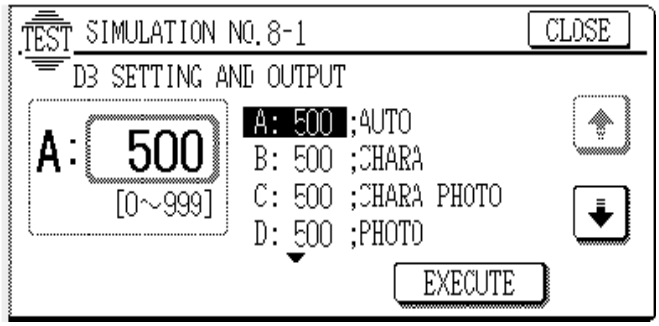
* ( ): Default

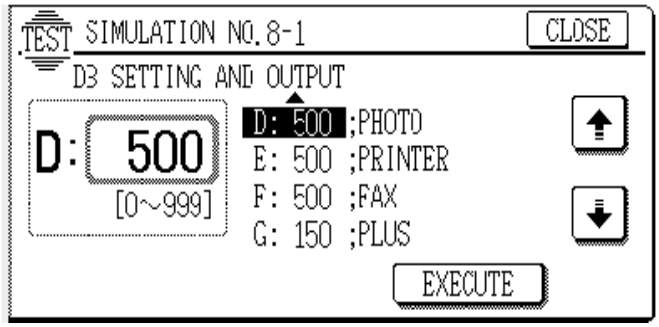
1. Select the print mode with [↑] key and [↓] key.
2. Enter the adjustment value with the 10-key pad.
3. Press the [EXECUTE] key.

   The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is supplied.

   After supplying the voltage for 30 sec, the [EXECUTE] key returns to the normal display.

   If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display.





Note	

8 - 2

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operation of the main charger grid voltage in each print mode and the control circuit. (for OPC drum type B)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	

Operation/ Procedure	(The charging/grid output voltage in each print mode can be adjusted and checked.)

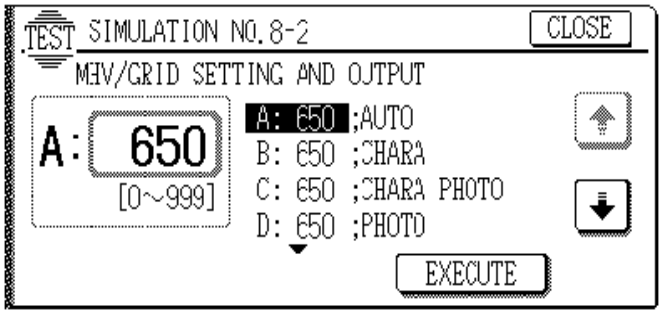
AUTO : Auto mode * (641) (–642 ±5V)
CHARA : Character mode * (641) (–642 ±5V)
CHARA PHOTO : Character/Photo mode * (641) (–642 ±5V)
PHOTO : Photo mode * (641) (–642 ±5V)
PRINTER : Printer mode * (641) (–642 ±5V)
FAX : FAX mode * (641) (–642 ±5V)
* ( ): Default

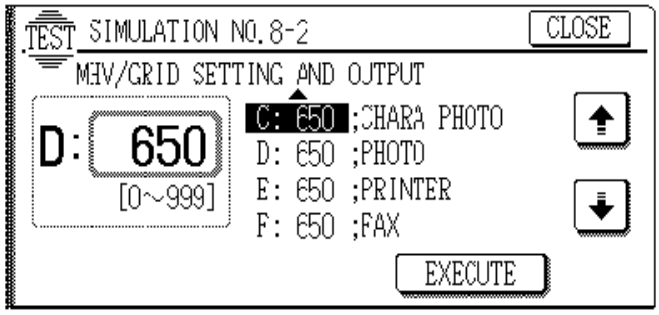
1. Select the print mode with [↑] key and [↓]key.
2. Enter the adjustment value with the 10-key pad.
3. Press the [EXECUTE] key.

   The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is supplied.

   After supplying the voltage for 30 sec, the [EXECUTE] key returns to the normal display.

   If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display.





Note	

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8 - 6	Purpose	Adjustment/Operation test/check
	Function (Purpose)	Used to check and adjust the transfer charger current and the control circuit.
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning) Copy
	Item	
	Operation/ Procedure	The transfer charger output voltage in printing the front and the back of paper can be adjusted and checked.

1. Select the print mode with [↑] key and [↓] key.
2. Enter the adjustment value with the 10-key pad.
3. Press the [EXECUTE] key.

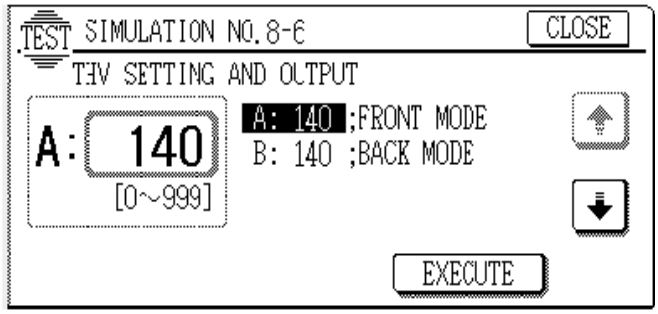
   The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is supplied.

   After supplying the voltage for 30 sec, the [EXECUTE] key returns to the normal display.

   If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display.

FROMT MODE : Front surface print (with the paper feed tray and manual paper feed tray)
BACK MODE : Back surface print (with duplex paper feed)

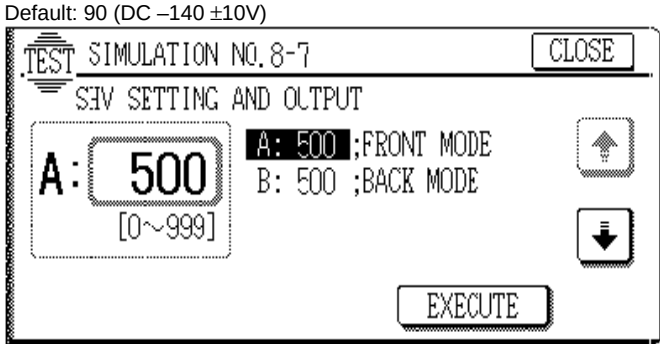
Default: 140 (13.5 + 1.5μA)



Note	

8 - 7

Purpose	Adjustment/Operation test/check
Function (Purpose)	Used to check and adjust the operation of the separation charger voltage and its control circuit.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning) Others
Item	
Operation/ Procedure	The separation charger output voltage in printing the front and the back of paper can be adjusted and checked. 1. Select the print mode with [↑] key and [↓] key. 2. Enter the adjustment value with the 10-key pad. 3. Press the [EXECUTE] key. The [EXECUTE] key is highlighted, the adjustment value entered in procedure 2 is set, and the voltage corresponding to the set value is supplied. After supplying the voltage for 30 sec, the [EXECUTE] key returns to the normal display. If the [EXECUTE] key is pressed while the voltage is supplied, the voltage output is stopped and the [EXECUTE] key returns to the normal display. FROMT MODE : Front surface print (with the paper feed tray and manual paper feed tray) BACK MODE : Back surface print (with duplex paper feed) Default: 90 (DC –140 ±10V)



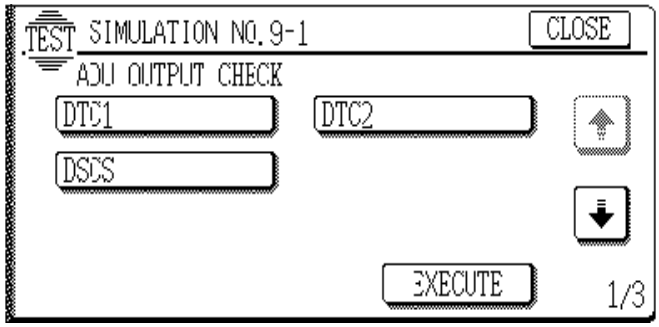
Note	

9

9 - 1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of the loads (clutches and solenoids) in the duplex section and the control circuit.
Section	Duplex
Item	Operation
Operation/ Procedure	1. Select the load to be checked with the key. The selected key is highlighted. 2. Press the [EXECUTE] key. The load selected in procedure 1 is operated. While the load is operated, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the load operation is interrupted.

DTC1 Duplex unit paper entry transport clutch 1
DTC2 Duplex unit paper entry transport clutch 2
DSCS Duplex unit roller contact solenoid



Note	

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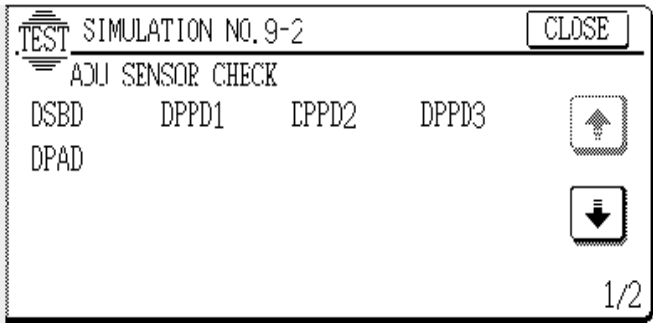
9 - 2	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of sensors and detectors in the duplex section and the control circuit.
	Section	Duplex
	Item	Operation
	Operation/ Procedure	The operations of sensors and detectors in the duplex section are displayed. The active sensors and detectors are highlighted.

DSBD Duplex unit paper entry switchback section sensor
DPPD1 Duplex unit paper transport switch 1
DPPD2 Duplex unit paper transport switch 2
DPPD3 Duplex unit paper transport switch 3
DPAD Duplex unit alignment plate home sensor



Note	

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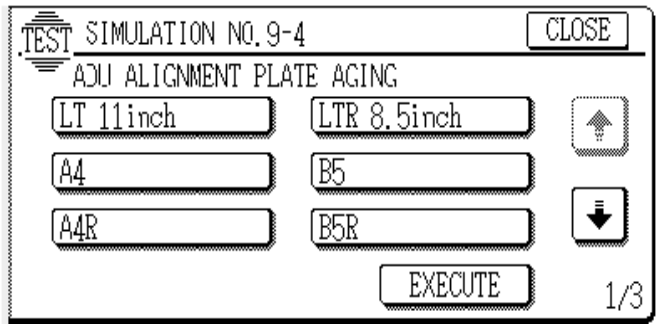
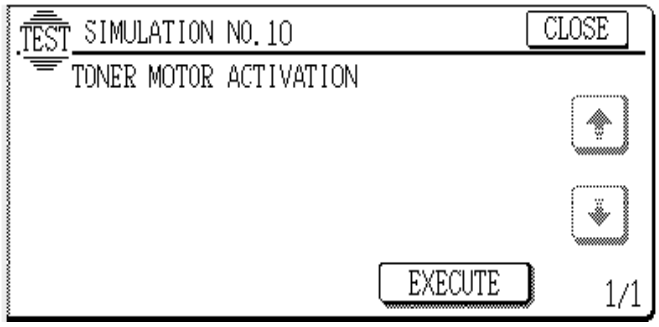
9 - 4	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the duplex unit alignment plate and its control circuit.
	Section	Duplex
	Item	Operation
	Operation/ Procedure	1. Select the paper size. The selected paper size is highlighted. 2. Press the [EXECUTE] key. Alignment operation is continuously operated. During the operation, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the operation is interrupted.



Note	

10

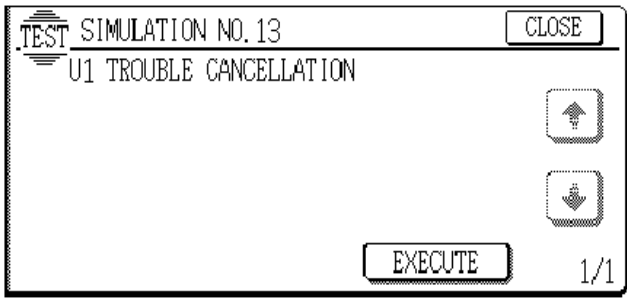
10 - 0	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the toner motor and its control circuit. (Note) Do not execute this simulation with toner in the toner hopper. If executed, excessive toner may enter the developing section, causing an overtoner trouble. Be sure to remove the toner motor from the toner hopper before executing this simulation.
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning) Developer/Toner Hopper
	Item	Operation
	Operation/ Procedure	When the [EXECUTE] key is pressed, it is highlighted and the toner motor rotates for 10 sec. After 10sec of rotation, the toner motor stops and the [EXECUTE] key returns to the normal display. If the [EXECUTE] key is pressed during rotation, the toner motor is stopped and the [EXECUTE] key returns to the normal state.



Note	

13

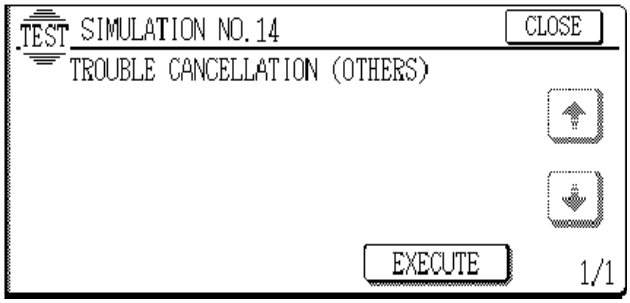
13 - 0	Purpose	Clear/Cancel (Trouble etc.)
	Function (Purpose)	Used to cancel the self diag U1 trouble.
	Section	
	Item	Trouble
	Operation/ Procedure	When the [EXECUTE] key is pressed, the U1 trouble is canceled and the display returns to the simulation main code entry screen. After this simulation is canceled, the machine resumes operation.



Note	

14

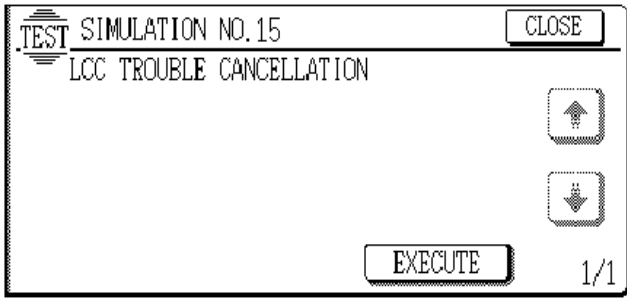
14 - 0	Purpose	Clear/Cancel (Trouble etc.)
	Function (Purpose)	Used to cancel the self diag U1/LOC/U2/PF troubles.
	Section	
	Item	Trouble Error
	Operation/ Procedure	When the [EXECUTE] key is pressed, the troubles excluding U1/LCC/U2/PF are canceled and the display returns to the simulation main code entry screen. After this simulation is canceled, the machine resumes operation.



Note	

15

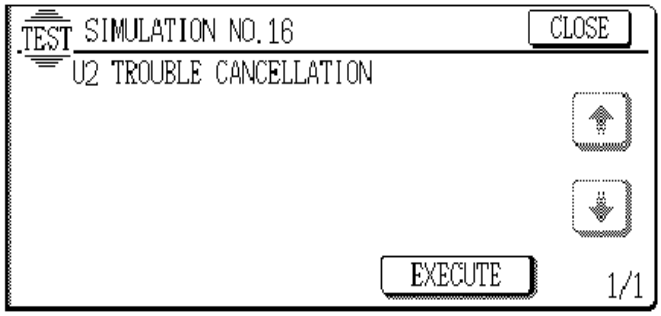
15 - 0	Purpose	Clear/Cancel (Trouble etc.)
	Function (Purpose)	Used to cancel the self diag U4 - 09/20/21/22 (large capacity tray) trouble.
	Section	Paper transport
	Item	Trouble
	Operation/ Procedure	When the [EXECUTE] key is pressed, the U6 (09/20/21/22) (LCC) trouble is canceled and the display returns to the simulation main code entry screen. After canceling this simulation, the machine resumes operation.



Note	

16

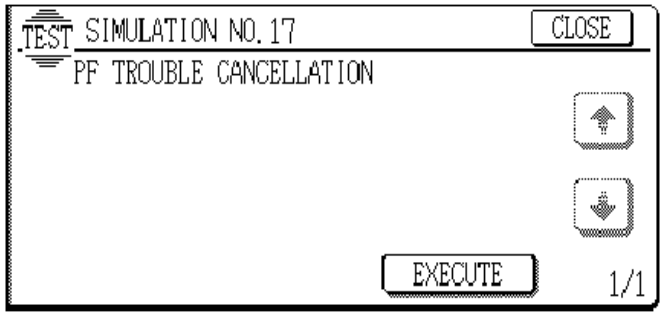
16 - 0	Purpose	Clear/Cancel (Trouble etc.)
	Function (Purpose)	Used to cancel the self diag U2 trouble.
	Section	
	Item	Trouble Error
	Operation/ Procedure	When the [EXECUTE] key is pressed, the U2 trouble is canceled and the display returns to the simulation main code entry screen. After this simulation is canceled, the machine resumes operation.



	Note	

17

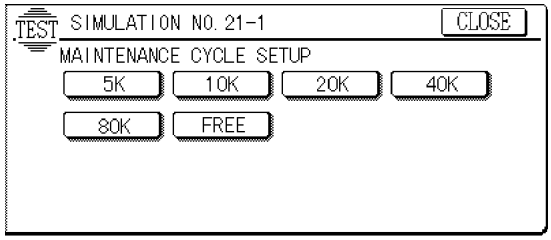
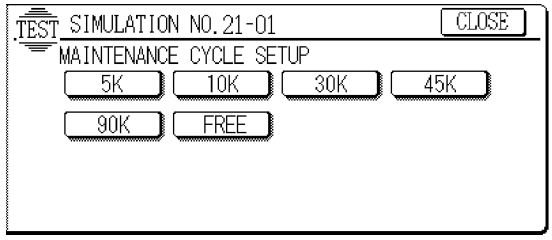
17 - 0	Purpose	Clear/Cancel (Trouble etc.)
	Function (Purpose)	Used to cancel copy inhibition by the host computer during the self diag PF.
	Section	Communication unit (TEL/LIU/MODEM etc.)
	Item	Trouble Error
	Operation/ Procedure	When the [EXECUTE] key is pressed, the PF trouble is canceled and the display returns to the simulation main code entry screen. After this simulation is canceled, the machine resumes operation.



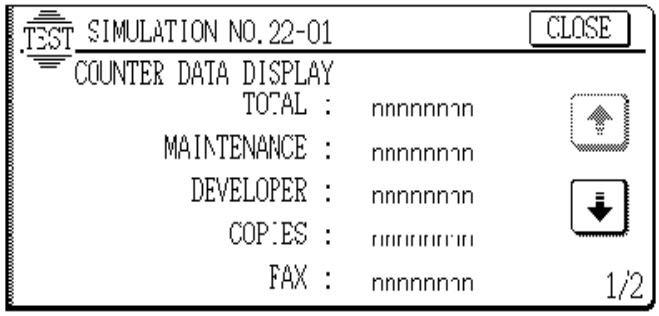
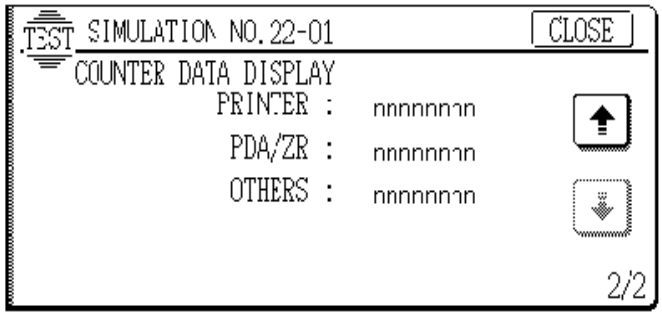
	Note	

21

21 - 1	Purpose	Setting
	Function (Purpose)	Used to set the maintenance cycle.
	Section	
	Item	Specifications Counter

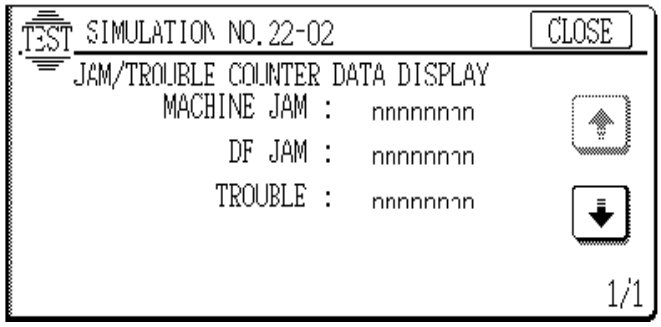
Operation/ Procedure	When the maintenance cycle is selected with the key, the selected key is highlighted. The maintenance message is displayed in every selected cycle. When FREE is selected, the maintenance display is not shown. (AR-2XX/3XX series)  (AR-4XX series) 
Note	

22

22 - 1	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the print out count of each section in each operation mode. (Used to check the maintenance timing.)
	Section	
	Item	Counter
	Operation/ Procedure	FAXandPDA/ZRare only for Japan models.   nnnnnnnn : Counter value
	Note	

22 - 2	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the total numbers of misfeed and troubles. (When the number of misfeed is considerably great, it is judged as necessary for repair. The misfeed rate is obtained by dividing this count value with the total counter value.)
	Section	
	Item	Trouble
	Operation/ Procedure	MACHINE JAM : The number of paper jam troubles occurred in the sections other than the document feeders (SPF/ADF/RADF).

DF JAM : The number of paper jam troubles occurred in the document feeders (SPF/ADF/RADF).
TROUBLE : Total number of troubles



nnnnnnnn : Counter value

Note	

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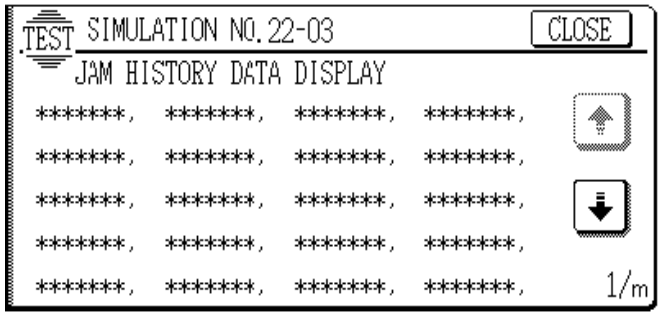
22 - 3	
Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the misfeed positions and the number of misfeed in each position. (If the number of misfeed is considerably great, it can be judged as necessary for repair.) (Sections other than ADF/RADF/SPF sections)
Section	
Item	Trouble Mis-feed
Operation/ Procedure	The misfeed history sections indicated by the sensors and detectors are displayed sequentially from the latest one. Max. 40 items of information can be stored, and the oldest one is deleted sequentially. The trouble position may be presumed with this data.



Note	

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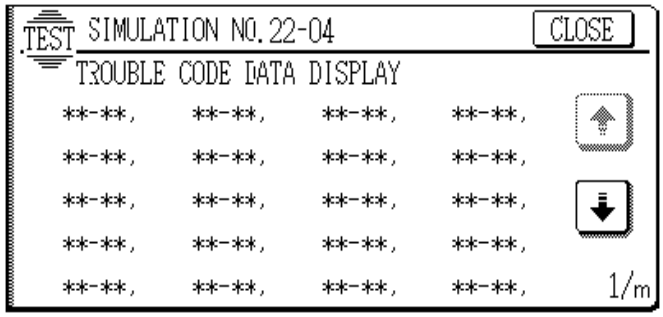
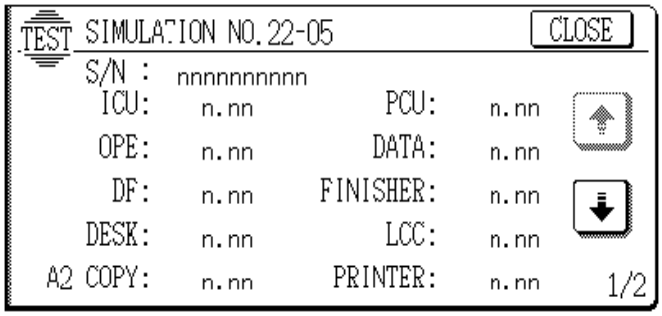
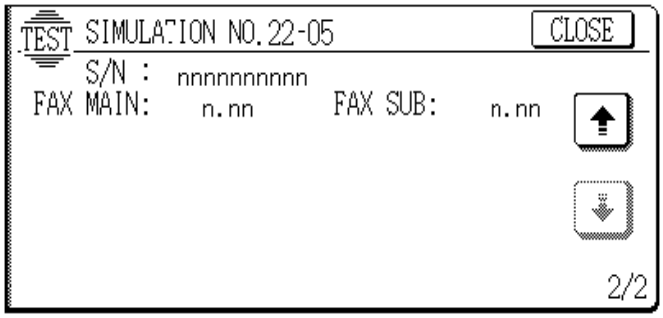
22 - 4	
Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the total trouble (self diag) history.
Section	
Item	Trouble
Operation/ Procedure	The trouble history error codes are displayed sequentially from the latest one. Max. 40 items of information can be stored, and the oldest one is deleted sequentially. The machine condition can be presumed according to this data.



Note	

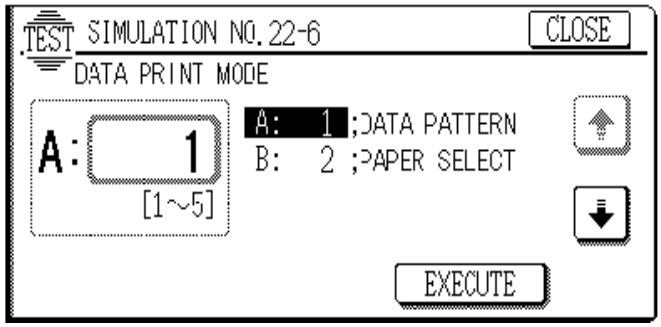
22 - 5	Purpose	Others
	Function (Purpose)	Used to check the ROM version of each unit (section).
	Section	
	Item	Software
	Operation/ Procedure	The ROM version of each section can be checked. If there is any problem in the software, check the ROM version of each section with this simulation and replace with a new version if necessary. FAX is for Japan model only.





	Note	

22 - 6	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to output the list of the setting and adjustment data (simulations, FAX soft switch, counters).
	Section	
	Item	Data Adjust/Setting data
	Operation/ Procedure	When installing or servicing, execute this simulation to print and store the adjustment values and setting data for use in the next servicing. (Memory trouble, PWB replacement, etc.) In this case, the print conditions can be set optionally. 1. Select the setup item. (The selected item is highlighted.) 2. Set the item and conditions with the 10-key pad. 3. Press the [EXECUTE] key to print various data. A: Print out items (Contents) 1: All adjustment values and setup data 2: All counter data 3: FAX soft switch setup data (Japan only) 4: Print density adjustment data 5: Adjustment and setup data of the other simulations B: Paper feed mode 1: Manual paper feed 2: Upper paper feed tray 3: Lower paper feed tray 4: Desk upper paper feed tray 5: Desk middle paper feed tray 6: Desk lower paper feed tray 7: Large capacity paper feed tray



Note	

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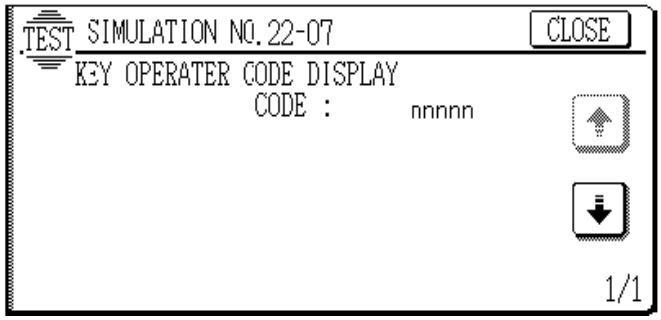
22 - 7

Purpose	User data output/Check (Display/Print)
Function (Purpose)	Used to display the key operator code. (This simulation is used when the customer forgets the key operator code.)
Section	
Item	Data User data
Operation/ Procedure	

nnnnn : Key operator code

Note	

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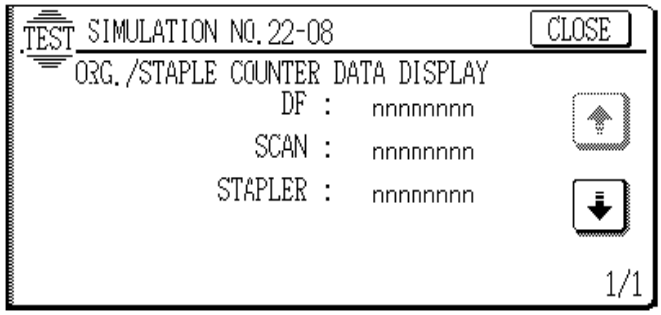
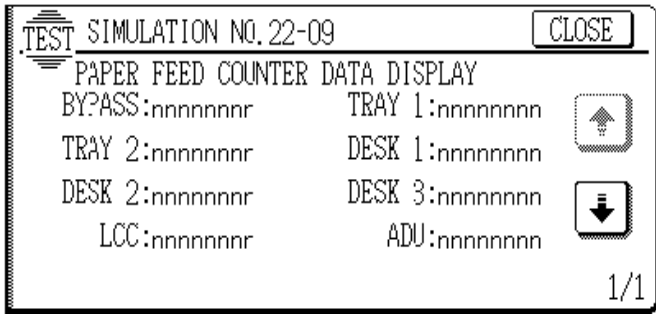
22 - 8

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the number of use of the staple, the ADF, RADF, SPF, and scanning.
Section	
Item	Counter
Operation/ Procedure	This data is used to check the use frequency of each section. According to this data, maintenance is executed. 

nnnnnnnn : Counter value

Note	

22 - 9	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the number of use of each paper feed section. (the number of prints)
	Section	Paper transport
	Item	Counter
	Operation/ Procedure	This data is used to check the use frequency of each paper feed section, According to this data, maintenance is performed.

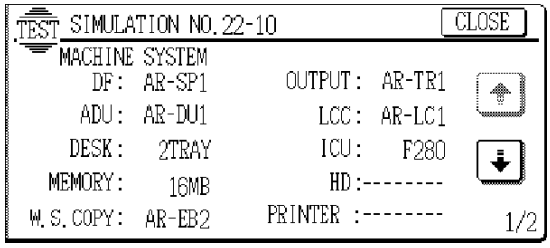


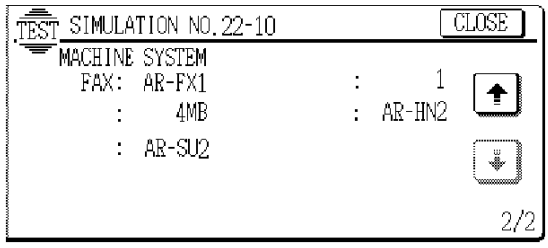
nnnnnnnn : Counter vlaue

	Note	

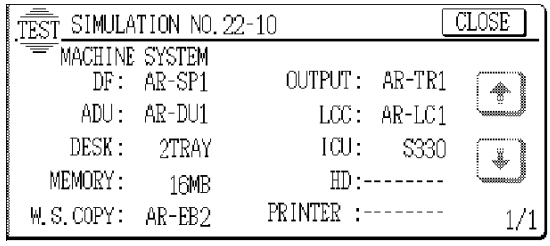
22 - 10	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the system configuration (option, internal hardware).
	Section	
	Item	Specifications Options
	Operation/ Procedure	This simulation allows to check the system configuration. The devices and the option units which are installed are displayed with the model names or size, etc.

(AR-230/280/285 series)

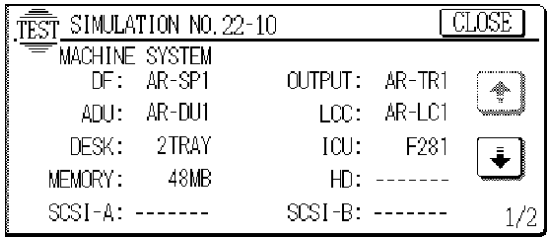




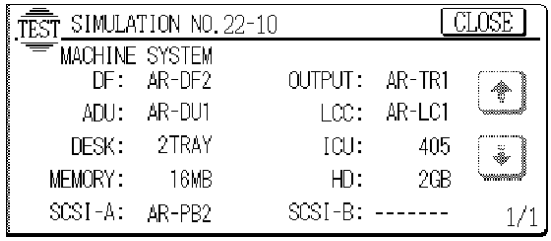
(AR-330/335 series)

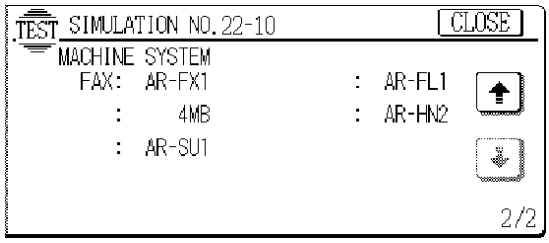


(AR-2X1/3X1/4XX/250/XX6 series)
(FAX Model)



(Non FAX Model)





Note	

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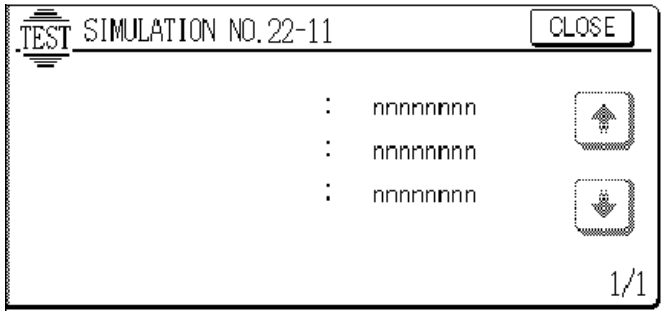
22 - 11

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the use frequency of FAX (send/receive). (FAX model only)
Section	FAX
Item	Data
Operation/ Procedure	
Note	

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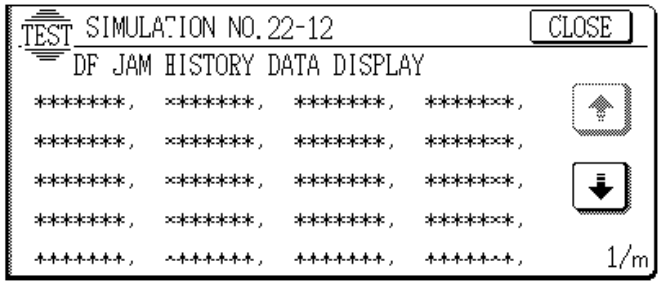
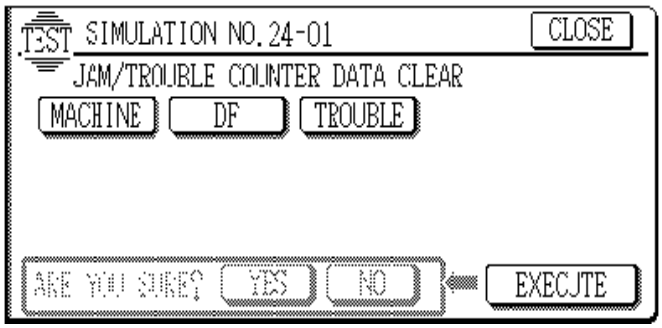
22 - 12

Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the misfeed positions and the number of misfeed at each position. (When the number of misfeed is considerably great, is can be judged as necessary for repair.)
Section	ADF/RADF/UDH/SPF
Item	Trouble Mis-feed
Operation/ Procedure	
Note	

24

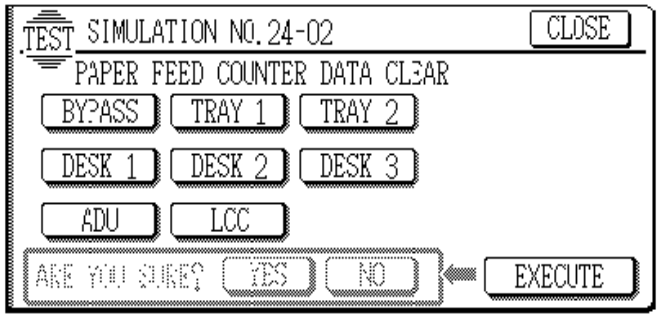
24 - 1

Purpose	Data clear
Function (Purpose)	Used to clear the misfeed counter, the misfeed history, the trouble counter, and the trouble history. (The counters are cleared after completion of maintenance.)
Section	
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. MACHINE : Machine JAM counter DF : SPF/RADF/ADF JAM counter TROUBLE : Trouble counter (When selected, it is highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES: Clear NO: Not clear After completion of maintenance, the above counter is cleared
Note	



24 - 2

Purpose	Data clear
Function (Purpose)	Used to clear the number of use (the number of prints) of each paper feed section.
Section	Paper transport
Item	Counter
Operation/ Procedure	1. Select the counter to be cleared. BYPASS : Manual paper feed tray counter TRAY1 : Tray 1 counter TRAY2 : Tray 2 counter DESK1 : Desk 1 counter DESK2 : Desk 2 counter DESK3 : Desk 3 counter ADU : Duplex unit counter LCC : Large capacity tray counter (When selected, it is highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES : Clear NO : Not clear After completion of maintenance, the above counter is cleared.



Note	

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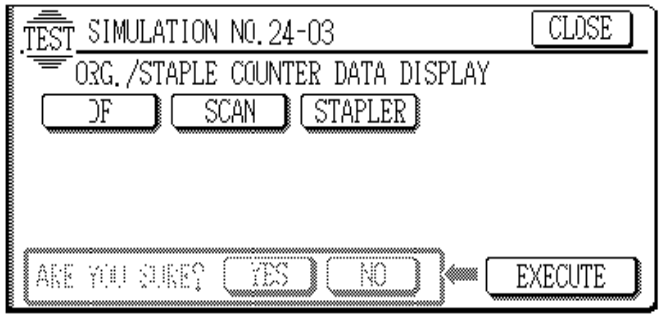
24 - 3	Purpose	Data clear
	Function (Purpose)	Used to clear the data of the number of use of the staple, the ADF, RADF, SPF and scanning.
	Section	
	Item	Counter
	Operation/ Procedure	1. Select the counter to be cleared. DF : ADF/SPF/RADF counter SCAN : Scan counter STAPLER : Stapler counter (When selected, it is highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES or NO to clear the counter. YES : Clear NO : Not clear After completion of maintenance, the above counter is cleared.



Note	

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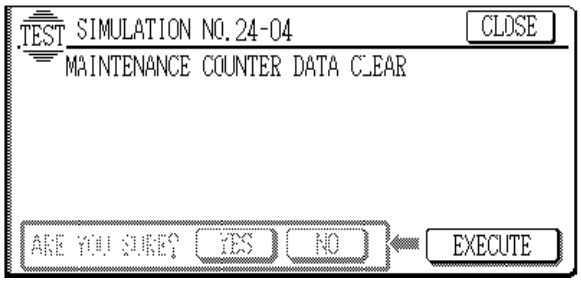
24 - 4	Purpose	Data clear
	Function (Purpose)	Used to reset the maintenance counter.
	Section	
	Item	Counter
	Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES or NO to clear the counter YES : Clear NO : Not clear The above counter is cleared after completion of maintenance.



Note	

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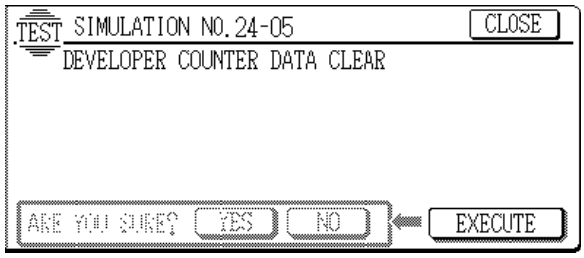
24 - 5

Purpose	Data clear
Function (Purpose)	Used to reset the developer counter. (The developer counter of the DV unit which is installed is reset.)
Section	Image process (Photoconductor/Developing/Transfer/Cleaning) — Developer/Toner Hopper
Item	Counter — Developer
Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES or NO to clear the counter. YES : Clear NO : Not clear The above counter is cleared after replacement of developer.



Note	

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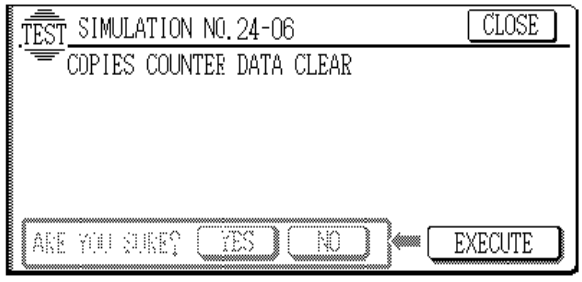
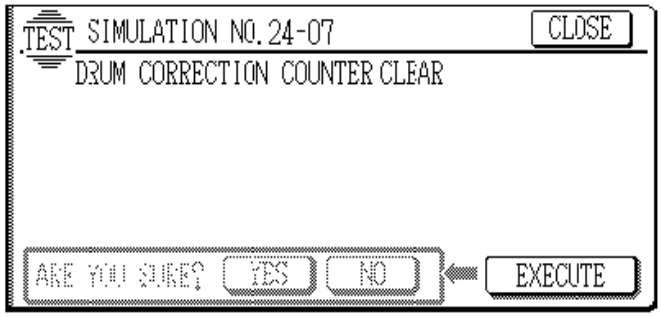
24 - 6

Purpose	Data clear
Function (Purpose)	Used to reset the copy counter.
Section	
Item	Counter — Copier
Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES or NO to clear the counter. YES : Clear NO : Not clear Generally, the counter is not cleared.



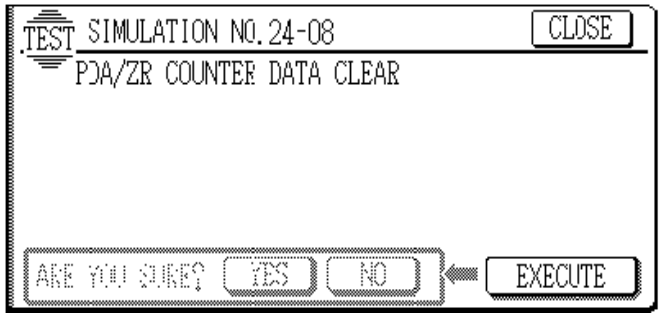
Note	

24 - 7		
	Purpose	Data clear
	Function (Purpose)	Used to clear the OPC drum (membrane decrease) correction counter. (This simulation is executed when the OPC drum is replaced.
	Section	Image process Photo conductor (Photoconductor/Developing/Transfer/Cleaning)
	Item	Counter Photo conductor
	Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES or NO to clear the counter. YES : Clear NO : Not clear The above counter is cleared after replacement of the OPC drum.



	Note	

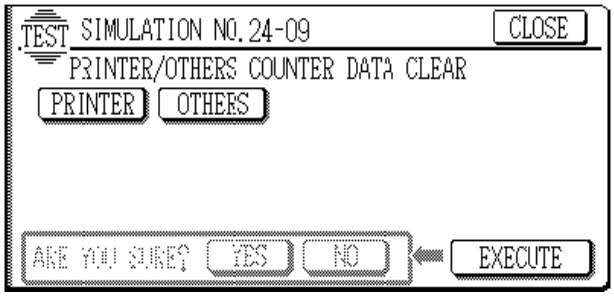
24 - 8		
	Purpose	Data clear
	Function (Purpose)	Used to clear the Zaurus print counter.
	Section	
	Item	Counter
	Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 2. Select YES (Clear) or NO (Not clear). YES : Clear NO : Not clear Generally the counter is not cleared.



	Note	Japan only

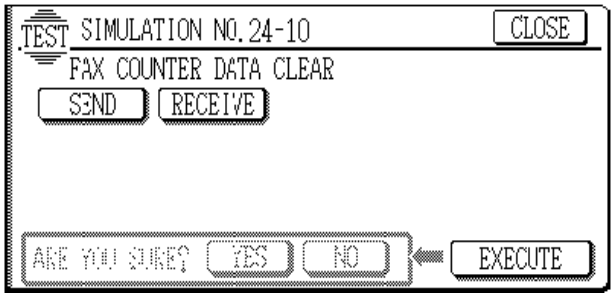
24 - 9		
	Purpose	Data clear
	Function (Purpose)	Used to clear the printer print counter. (The counter is cleared after completion of maintenance.)
	Section	Printer
	Item	Counter Printer

Operation/ Procedure	1. Select the counter to be cleared. PRINTER : Printer counter OTHER : The other counters (When selected, it is highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown. 3. Select YES (Clear) or NO (Not clear). YES : Clear NO : Not clear The above counter is cleared after completion of maintenance.



Note	

24 - 10	Purpose	Data clear
	Function (Purpose)	Used to clear the FAX counter. (The counter is cleared after completion of maintenance.) (FAX model only)
	Section	FAX
	Item	Counter
	Operation/ Procedure	1. Select the counter to be cleared. SEND FAX : FAXSend counter RECEIVE FAX : FAXReceive counter (When selected, it is highlighted.) 2. Press the [EXECUTE] key. The display for reconfirmation to clear is shown 3. Select YES or NO to clear the counter. YES : Clear NO : Not clear After completion of maintenance, the above counter is cleared.

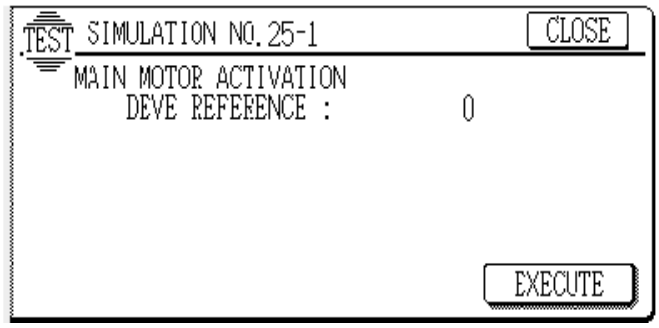


Note	

25

25 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the main drive (excluding the scanner section) amd to check the operation of the toner concentration sensor. (The toner concentration sensor output can be monitored.)
	Section	DRIVE
	Item	Operation

	Operation/ Procedure	The main motor rotates for 3 minutes, and the drive system can be checked. The toner concentration sensor output value is displayed. When the [EXECUTE] key is pressed, it is highlighted and the main motor rotates and the toner concentration sensor output value is displayed. After 3 minutes, the main motor stops and the [EXECUTE] key returns to the normal display. If the [EXECUTE] key is pressed during rotation, the operation is stopped and the [EXECUTE] key returns to the normal display.



	Note	

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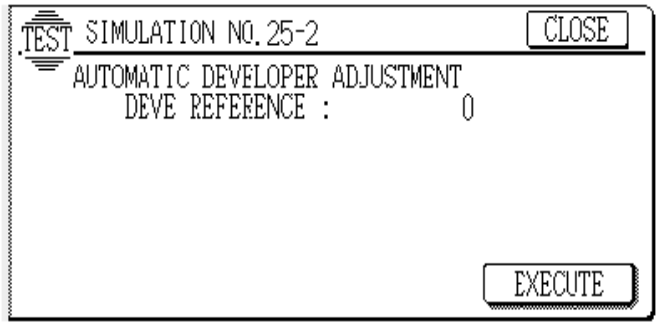
25 - 2	Purpose	Setting
	Function (Purpose)	Used to make the initial setting of toner concentration when replacing developer.
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning) Developer/Toner Hopper
	Item	
	Operation/ Procedure	When the [EXECUTE] key is pressed, it is highlighted and the main motor rotates, and the toner concentration sensor detects the toner concentration and the output value is displayed. After stirring for 3 minutes, the toner concentration detection level average value is set (stored) as the reference toner concentration control value. If the [EXECUTE] key is pressed during rotation, the operation stops and the [EXECUTE] key returns to the normal display. If [EE-EU] or [EE-EL] is displayed, it means the reference toner concentration control value is not set normally. Default: 0 (Note) Do not set to 0.



	Note	

26

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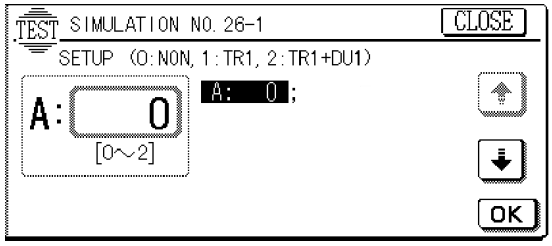
26 - 1	Purpose	Setting
	Function (Purpose)	Used to set options. (This simulation is used to make option setting when an option is installed.)
	Section	
	Item	Specifications Options

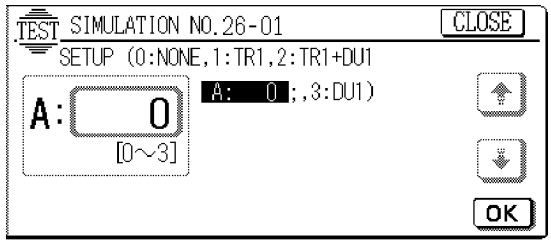
Operation/ Procedure	Enter the code number corresponding to the option installation with the 10-key pad and press the [OK] key. When an option is installed or removed, this setting must be changed accordingly. If this setting is improper, an error message is displayed.

(AR-230/280/285/330/335 series)



Set value	Connection option
0	No connection (Default)
1	AR-TR1
2	AR-TR1 + AR-DU1

(AR-2X1/3X1/4XX/250/XX6 series)



Set value	Connection option
0	No connection
1	AR-TR1
2	AR-TR1 + AR-DU1
3	AR-DU1 only

Note	

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26 - 2

Purpose	Setting
Function (Purpose)	1) Used to set the paper size of the large quantity paper tray. (When the paper size is changed, the lift paper size must be also changed with this simulation.) 2) Used to detect the paper or document size of 8.5" x 13" (Inch series) and set the display mode. (All paper feed modes)
Section	Paper transport
Item	Specifications
Operation/ Procedure	1. Select the item to be set with [↑] key and [↓] key. A: Large capacity paper tray paper size setting B: 8.5" x 13" (330mm/13") paper size detection mode setting 2. Enter the code number corresponding to the paper size of the large capacity paper feed tray with the 10-key and press the [OK] key.

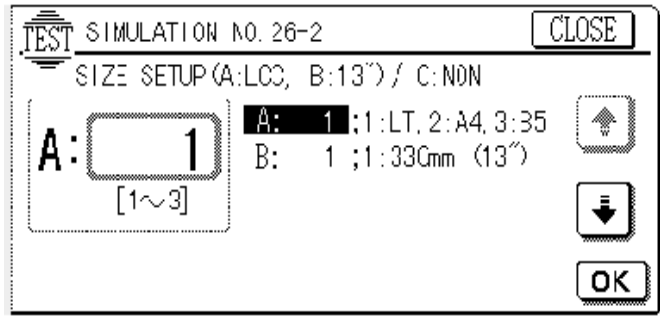
Set value	Setting size
1	8.5X11
2	A4 (Default)
3	B5

2'. Used to set the size detection mode when 8.5" x 13" paper or document is used.
Enter the code number with the 10-key pad and press the [OK] key.

∗ Detection size when 8.5" x 13" document/paper is used

	Unit		Destination	Set value	
				0 (Default) (Invalid)	1 (Valid)
Document	AR-SP1		All destinations	8.5" x 14"	8.5" x 13" *1
	AR-AF1 AR-RF1		Japan	A4R	A4R *5
			EX AB series (SLK/SEEG)	A4R	A4R *5
			EX AB series (SCA/Others)	A4R	8.5" x 13" *3
			Inch series (SEC/SECL)	8.5" x 14"	8.5" x 14" *5
			Inch series (Others)	8.5" x 14"	8.5" x 13" *1
	Document table		Japan/EX AB series	B4	8.5" x 13" *2
			Inch series	8.5" x 14"	8.5" x 13" *1
Paper	Main body	Manual feed tray	All destinations	8.5" x 14"	8.5" x 13" *4
		Paper feed cassette	All destinations	— *6	
	AR-DE1/DE2		All destinations		
	AR-LC1		All destinations	—	

*1: A document of 8.5" x 14" is detected as 8.5" x 13".
*2: A document of B4 is detected as 8.5" x 13".
*3: A document of A4R is detected as 8.5" x 13".
*4: A document of 8.5" x 14" is detected as 8.5" x 13".
*5: Applicable by replacing the document set tray of the AR-AF1/RF1.
*6: Setting is available with the key operator program (P40).



Note	

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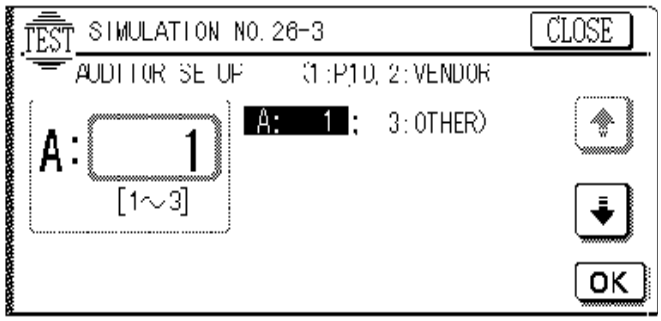
26 - 3

Purpose	Setting
Function (Purpose)	Used to set the specifications of the auditor. Setting must be made depending on the use condition of the auditor.
Section	Auditor
Item	Specifications
Operation/ Procedure	Enter the code number corresponding to the auditor specification mode with the 10-key pad and press the [OK] key.

Set value	Specification mode
1	Built-in auditor mode (Default)
2	Coin vendor
3	Others



Note	

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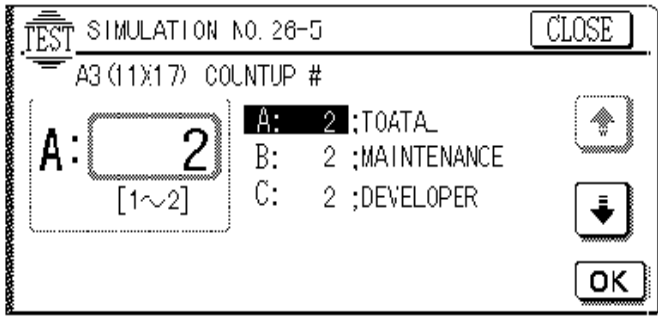
26 - 5

Purpose	Setting
Function (Purpose)	Used to set the count mode of the total counter and the maintenance counter.
Section	
Item	Specifications Counter
Operation/ Procedure	Used to set the single count-up or double count-up for the total counter, the maintenance counter, and the developer counter when printing is performed with A3, 11 x 17" paper, 1. Select the kind of the counter with [↑] and [↓] key.

A	Total
B	Maintenance
C	Developer



2. Enter "1" or "2" with the 10-key pad and press the [OK] key.
   1 : Single count
   2 : Double count

Default: 2

Note	

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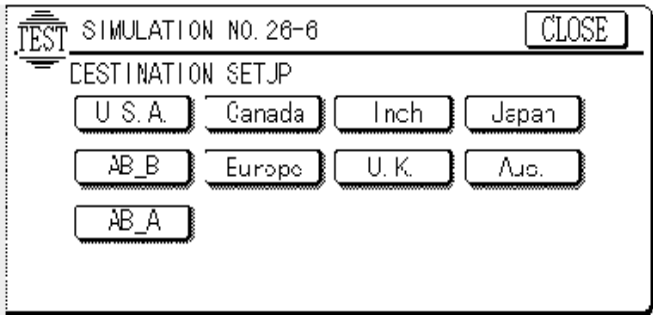
26 - 6		
	Purpose	Setting
	Function (Purpose)	Used to set the specifications depending on the destination.
	Section	
	Item	Specifications Destination
	Operation/ Procedure	Select the destination referring to the table below.

U.S.A.	United States of America
Canada	Canada
Inch	Inch series, other destinations
Japan	Japan
AB_B	AB series (B5 detection) other destinations
Europe	Europe
U.K.	United Kingdom
Aus.	Austrailia
AB_A	AB series (A5 detection) other destinations

When the destination setting is changed, the following specification is changed.
(Toner save mode setup specification) (Paper specification)



Note	

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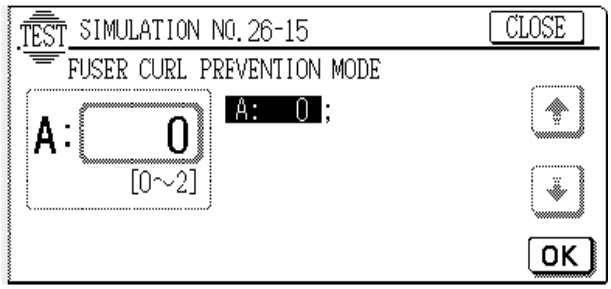
26 - 15		
	Purpose	Setting
	Function (Purpose)	Used to set the fusing operation mode (paper curl corresponding mode).
	Section	Fixing (Fusing)
	Item	Operation
	Operation/ Procedure	Due to the paper type (paper property), paper may be curled in the fusing section to cause a paper jam. To prevent against this, the fusing conditions is changed. Enter the code number corresponding to the fusing condition and press the [OK] key.

Set value	Remedy mod	Fusing condition
0	Normal operation	(Default)
1	Remedy mode 1	a. Racing until the specified fusing temperature is reached.
2	Remedy mode 1	a. Racing is performed until the specified fusing temperature is reached. b. Copy mode is duplex mode or sort. Group mode • Previous rotation is made for 5 sec before starting copying.



Note

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26 - 18 Purpose: Setting

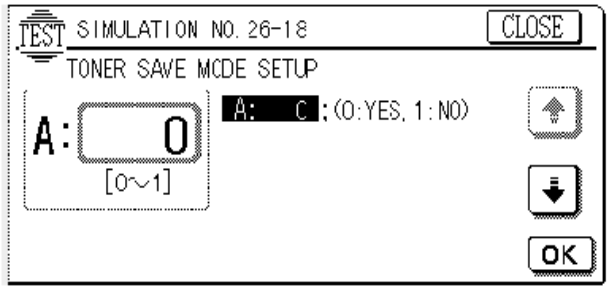
Function (Purpose): Used to set VALID/INVALID of toner save operation. (This simulation is valid only in the Japan and UK versions. (It depends on SIM 26-6 (Destination setting). For the other destinations, the same setting can be executed with the user program.)

Section:

Item: Specifications — Operation mode (Common)

Operation/ Procedure: Enter the code number corresponding to the condition (the toner save YES/NO) with the 10-key and press the [OK] key.

Set value	Toner save
0	YES
1	NO (Default)



Note

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26 - 22 Purpose: Setting

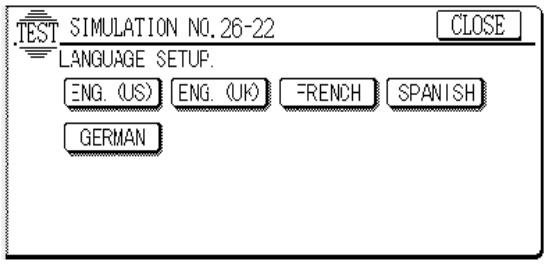
Function (Purpose): Used to set the specification (language display) for the destination. (Target models: AR-280/285/335) (Excluding the Japan models.)

Section:

Item: Specifications

Operation/ Procedure: Select the language to be used according to the table below.

Display	Language
ENG.(US)	English(US)
ENG.(UK)	English(UK)
FRENCH	French
SPANISH	Spanish
GERMAN	German



Note	

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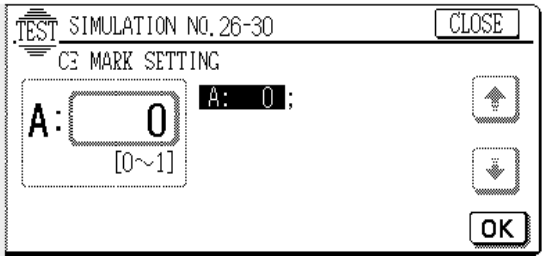
26 - 30	Purpose	Setting
	Function (Purpose)	Used to set the CE mark conforming operation mode. (For flickers when driving the fusing heater lamp.)
	Section	
	Item	Specifications Operation mode (Common)
	Operation/ Procedure	Enter the number corresponding to the operation mode with the 10-key and press the [OK] key.

Set value	Content
0	CE mark control inhibit
1	CE mark control allowed (Default)

0 : Normal operation heater lamp slow up control
1 : CE mark standard complying operation (Heater lamp slow up control) (Europe)



Note	

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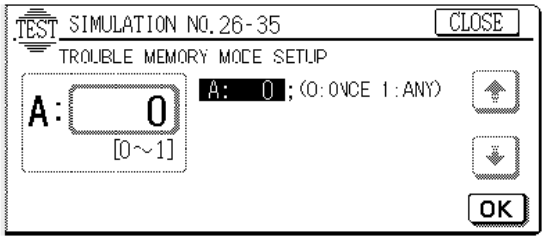
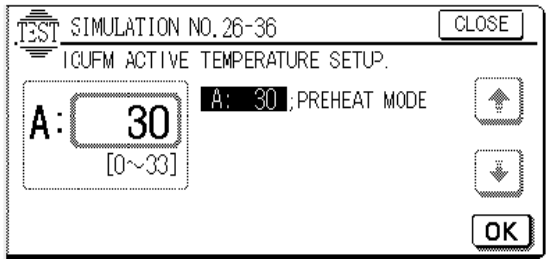
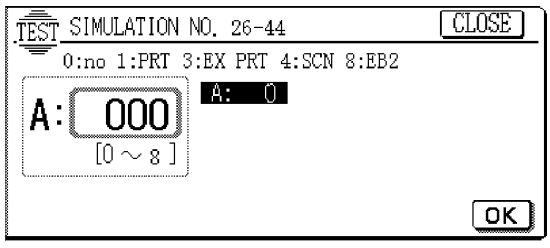
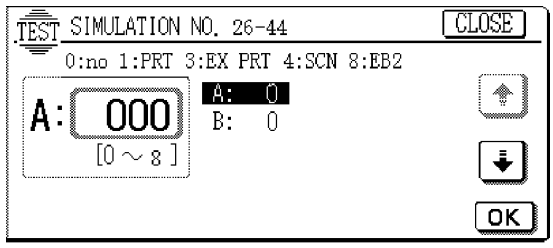
26 - 35	Purpose	Setting
	Function (Purpose)	Used to set whether the trouble history display of SIM 22-4 is displayed as one trouble or as the number of continuous troubles when two or more troubles of a same kind occured.
	Section	
	Item	Specifications
	Operation/ Procedure	Used to set whether the trouble history display by SIM 22-4 is displayed as one trouble or as the accumulated number of continuous troubles when two or more troubles of same kind occur continuously. Select the number corresponding to the display mode with the 10-key and press the [OK] key. 1 : The trouble history display by SIM 22-4 is displayed as it is when two or more troubles occur continuously. 0 : The trouble history display by SIM 22-4 is displayed as one trouble when two or more troubles occur continuously. Default: 0



Note	

26 - 36		
	Purpose	Setting
	Function (Purpose)	Used to set the ICU fan operating temperature. (Operation in pre-heat mode.) (Excluding Japan models.)
	Section	ICU
	Item	Operation
	Operation/ Procedure	Used to set the threshold value of the ambient temperature for turning ON the ICU fan motor in the pre-heat mode. Set range: 0~33[˚C] Default: 30[˚C] (30) Enter the operating temperature with the 10-key pad and press the [OK] key. 
	Note	

26 - 41		
	Purpose	Setting
	Function (Purpose)	Used to enable/disable the auto magnification ratio select (AMS) function in the pamphlet copy mode.
	Section	
	Item	Specifications — Operation mode (Common)
	Operation/ Procedure	
	Note	

26 - 44		
	Purpose	Setting
	Function (Purpose)	Used to set the model of the unit which is connected to the SCSI I/F of ICU PWB.
	Section	ICU
	Item	Specifications — Interface/Communication
	Operation/ Procedure	A is at the left of B when viewed from the rear side. 0: No connection 1: Printer controller 3: External printer controller (Not used) 4: Scanner controller (Not used) 8: (Not used) One SCSI channel available  Two SCSI channels available 
	Note	

27

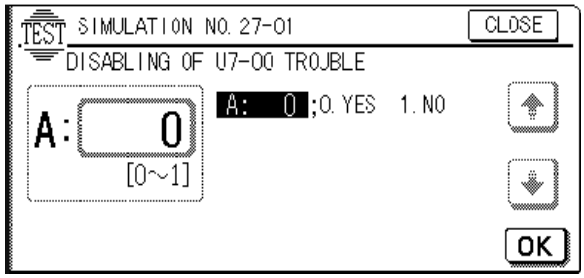
27 - 1

Purpose	Setting
Function (Purpose)	Used to set the operation specifications when a communication trouble occurs between the host computer and MODEM (on the copier). (When a communication trouble occurs between the host computer and MODEM (copier), the self diag display (U7-00) is printed and setting is made to select inhibit/allow of printing.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Specifications Operation mode (Common)
Operation/ Procedure	Enter the code number corresponding to the operation mode with the 10-key and press the [OK] key. Used to set Enable/Disable of U7-01 trouble detection.

Set value	Content
0	U7-01 trouble detection is disabled. (Default)
1	U7-01 trouble detection is enabled.

0: Though a communication trouble occurs between the host computer and the MODEM (machine side), the operation of the machine is not affected.

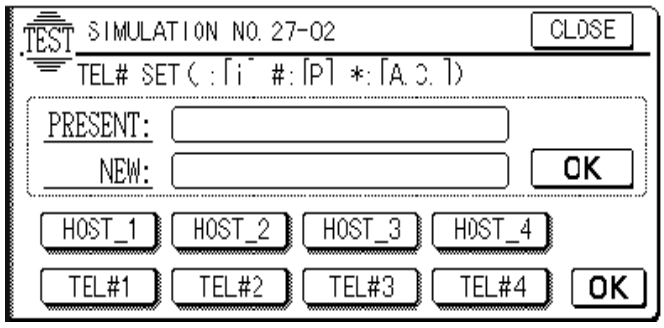
1: When a communication trouble occurs between the host computer and the MODEM (copier side), the self diag display (U7-00) id shown and printing is inhibited.



Note	

27 - 2

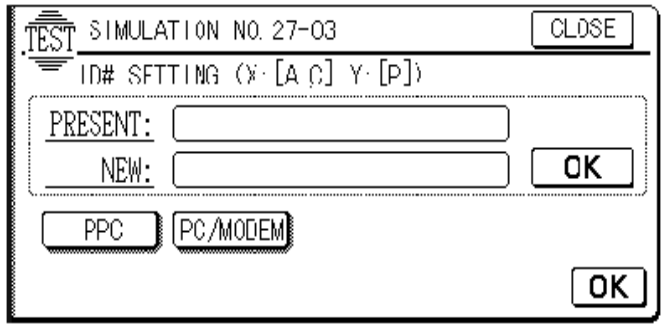
Purpose	Setting
Function (Purpose)	Used to set and change the host computer/MODEM numbers. (This setting is required when a communication is made between the copier and a computer through MODEM.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Data User data
Operation/ Procedure	1. Select the PC/MODEM(HOST#/TEL#)to be set or changed. 'The selected key is highlighted.) 2. Press the [OK] key. The key is highlighted and inquiring of the present set number of the selected PC/MODEM is made to the host computer. (When the number is supplied from the host normally.) The present set number is displayed in the column of "PRESENT"PRESENT (or no display is made if not registered) and the [OK] key at the upper right returns from the gray display to the normal display. (In case of a trouble) "Failed (U7-00)" is displayed in the column of PRESENT and the OK key at the lower right returns from the highlight display to the normal display. 3. When changing the number, enter the new number (max. 24 digits) with the 10-key and the following keys. #: [P]((program) key * : [AUDIT CLEAR] ((Dept. count end) key , : [i]((Information) key 4. When the [OK] key at the upper right is pressed, the newly set number for the selected PC/MODEM is registered. (When registered normally) The number displayed in the column of NEW disappears and the newly set number appears in the column of PRESENT (In case of a trouble) "Failed (U7-00)" is displayed in the column of NEW.



Note	For this setting, the copier and the host computer must be connected with a communication line (MODEM).

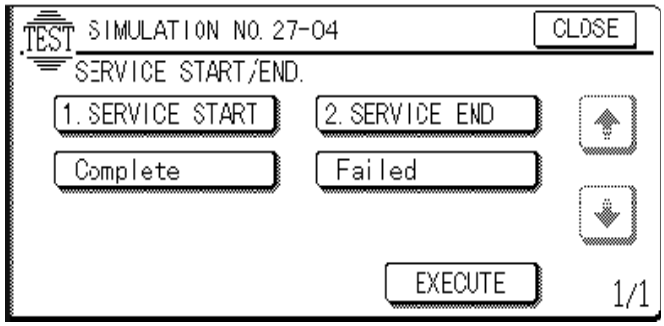
27 - 3

Purpose	Setting
Function (Purpose)	Used to set and change the ID numbers of the copier and the host computer/MODEM numbers. (This setting is required when a communication is made between the copier and a computer through MODEM.)
Section	Communication unit (TEL/LIU/MODEM etc.)
Item	Data User data
Operation/ Procedure	1. Select between PPC(copier) and PC/MODEM(host). The key is highlighted. 2. Press the [OK] key at the lower right. (The key is highlighted and an inquiry of the selected ID No, to the host.) (When the number is supplied from the host normally) The present set number is displayed in the column of PRESENT (or no display is made if not registered) and the [OK] key at the upper right returns from the gray display to the normal display. (In case of a trouble) "Failed (U7-00)" is displayed in the column of PRESENT and the OK key at the lower right returns from the highlight display to the normal display. 3. When changing the number, enter the new number (max. 24 digits) with the 10-key and the following keys. X: [P](program) key Y: [AUDIT CLEAR](dept. count end) key The entered number is displayed in the column of "NEW" 4. When the [OK] key at the upper right is pressed, the newly set ID number of the selected PC/MODEM is registered on the host side. (When registered normally) The number in the column of NEW disappears and the newly set and registered number appears in the column of PRESENT. (In case of a trouble) "Failed (U7-00) " is displayed in the column of NEW



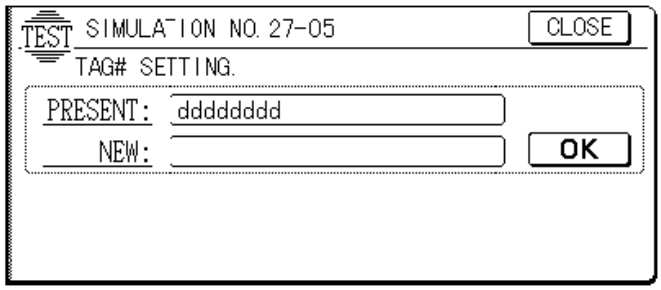
Note	For this setting, the copier and the host computer must be connected with a communication line (MODEM).

27 - 4		
	Purpose	Setting
	Function (Purpose)	Used to enter the start time and the end time of servicing for management of service work. (The data can be checked by the host computer.)
	Section	Communication unit (TEL/LIU/MODEM etc.)
	Item	Data
	Operation/ Procedure	1. Press the[SERVICE START]key when starting servicing. The key is highlighted. 2. Press the [EXECUTE]key. The key is highlighted and the data on service start time is sent. 3. Press the [SERVICE END]Key after completion of servicing. The key is highlighted. 4. Press the [EXECUTE]key . The key is highlighted and the data on service end time is sent. When the host receives the data normally,"Complete"is highlighted. In case of a trouble, "Failed"is highlighted.



	Note	For this setting, the copier and the host computer must be connected with a communication line (MODEM).

27 - 5		
	Purpose	Setting
	Function (Purpose)	Used to enter the TAG No. of the copier. (This simulation allows to check the machine TAG No. with the host computer.)
	Section	Communication unit (TEL/LIU/MODEM etc.)
	Item	Data
	Operation/ Procedure	1. When entering the tag No. newly or changing the tag No. enter the value (max. 8 digits) with the 10-key. The entered number is displayed in the column of "NEW" 2. Press the [OK] key. The new tag No. entered in procedure 1 is set. It is advisable to enter the machine's SER No. for machine management and servicing.



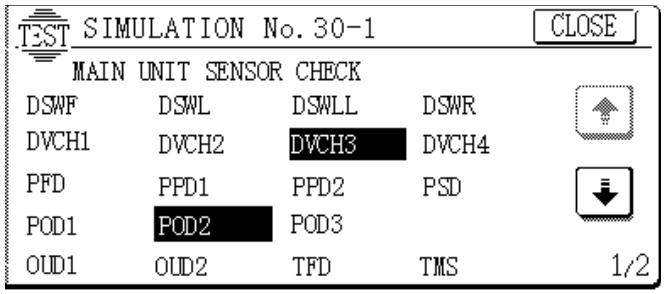
	Note	For this setting, the copier and the host computer must be connected with a communication line (MODEM).

30

30 - 1

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section, the paper transport section, and the paper exit section, and the related circuit.
Section	Others
Item	Operation
Operation/ Procedure	The operations of the sensors and detectors in the sections other than the paper feed section of the copier are displayed. The active sensors and detectors are highlighted.

DSWF	Copier front door open/close
DSWL	Copier left door
DSWLL	Copier left lower door
DSWR	Copier right door
DVCH1	Developing unit installation detection
DVCH2	Developing unit installation detection
DVCH3	Developing unit installation detection
DVCH4	Developing unit installation detection
PFD	Paper vertical transport sensor
PPD1	Paper transport sensor 1
PPD2	Paper transport sensor 2
PSD	Paper transport sensor
POD1	Paper exit sensor 1
POD2	Paper exit sensor 2
POD3	Paper exit sensor 3
TFD	Waste toner bottle full detection
TMS	Toner motor missing detection

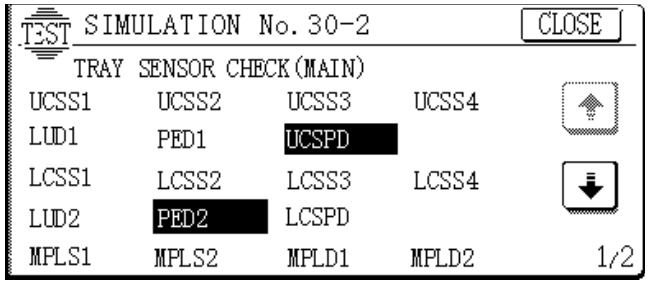


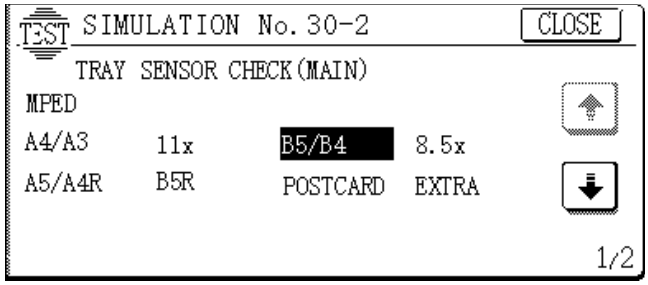
Note	

30 - 2

Purpose	Operation test/check
Function (Purpose)	Used to check the operation of sensors and detectors in the paper feed section and the related circuits. (The operations of sensors and detectors in the paper feed section can be monitored with the LCD.)
Section	Paper transport
Item	Operation
Operation/ Procedure	The operations of the sensors and detectors in the paper feed section of the copier are displayed. The active sensors and detectors are highlighted.

	UCSS1	Copier upper tray paper size detection 1
	UCSS2	Copier upper tray paper size detection 2
	UCSS3	Copier upper tray paper size detection 3
	UCSS4	Copier upper tray paper size detection 4
	LUD1	Copier upper tray upper limit detection
	PED1	Copier upper tray paper detection
	UCSPD1	Copier upper tray paper size detection 1
	UCSPD2	Copier upper tray paper size detection 2
	LCSS1	Copier lower tray paper size detection 1
	LCSS2	Copier lower tray paper size detection 2
	LCSS3	Copier lower tray paper size detection 3
	LCSS4	Copier lower tray paper size detection 4
	LUD2	Copier lower tray paper detection
	PED2	Copier lower tray paper detection
	LCSPD1	Copier lower tray paper size detection 1
	LCSPD2	Copier lower tray paper size detection 2
	MPLS1	Manual tray length detection 1
	MPLS2	Manual tray length detection 2
	MPLD1	Manual feed paper length detection 1
	MPLD2	Manual feed paper length detection 2
	MPED	Manual tray paper empty detection
One of these is displayed	A4/A3	Manual tray (width only) detection size
	11x	Manual tray (width only) detection size
	B5/B4	Manual tray (width only) detection size
	8.5x	Manual tray (width only) detection size
	A5/A4R	Manual tray (width only) detection size
	B5R	Manual tray (width only) detection size
	POSTCARD	Manual tray (width only) detection size
	EXTRA	Manual tray (width only) detection size





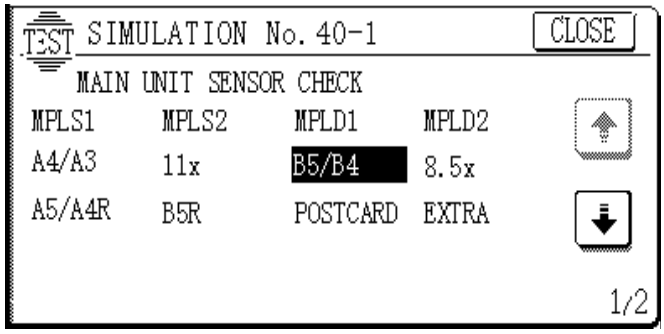
Note	

40

40 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the manual paper feed tray paper size detector and the related circuit. (The operation of the manual paper feed tray paper size detector can be monitored with the LCD.)
	Section	Paper transport
	Item	Operation

Operation/ Procedure	The operations of the sensors and detectors in the manual paper feed section are displayed. The active sensors and detectors are highlighted.

One of these is displayed.	MPLS1	Manual tray length detection 1
	MPLS2	Manual tray length det3ction 2
	MPLD1	Manual feed paper length detection 1
	MPLD2	Manual feed paper length detection 2
	A4/A3	Manual tray (width only) detection size
	11x	Manual tray (width only) detection size
	B5/B4	Manual tray (width only) detection size
	8.5x	Manual tray (width only) detection size
	A5/A4R	Manual tray (width only) detection size
	B5R	Manual tray (width only) detection size
	POSTCARD	Manual tray (width only) detection size
	EXTRA	Manual tray (width only) detection size



Note	

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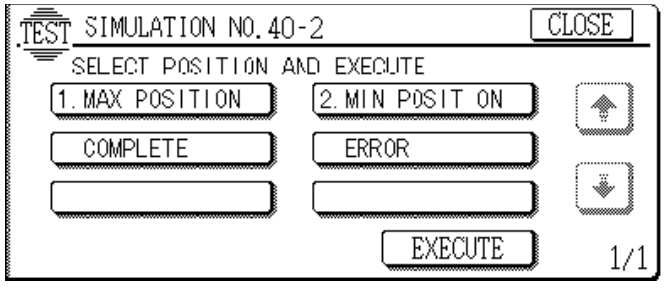
40 - 2	Purpose	Adjustment
	Function (Purpose)	Used to adjust the manual paper feed tray paper width detector detection level.
	Section	Paper transport
	Item	Operation
	Operation/ Procedure	1. Open the manual paper feed guide at maximum. 2. Press the [MAX POSITION] key. 3. Press the [EXECUTE] key. The[EXECUTE] key is highlighted then it returns to the normal display. The manual paper feed guide max. width position detection level is recognized. 4. Open the manual paper feed guide at minimum. 5. Press the [MIN POSITION] key. 6. Press the [EXECUTE] key. The key is highlighted then it returns to the normal display. The manual paper feed guide min. position detection level is recognized. If the above operation is nor performed properly, the ERROR display is highlighted. If performed properly, the above data is stored and the COMPLETE is highlighted.



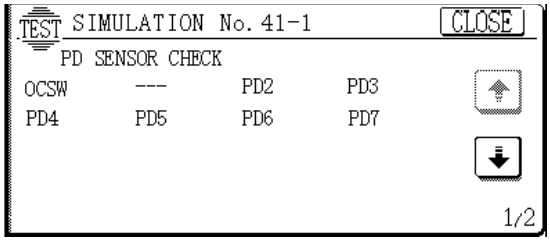
Note	

41

41 - 1

Purpose	Operation test/check/Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The operation of the document size sensor can be monitored with the LCD.)
Section	Others
Item	Operation
Operation/ Procedure	The operations of the sensors and detectors in the document size detection section are displayed. The active sensors and detectors are highlighted.

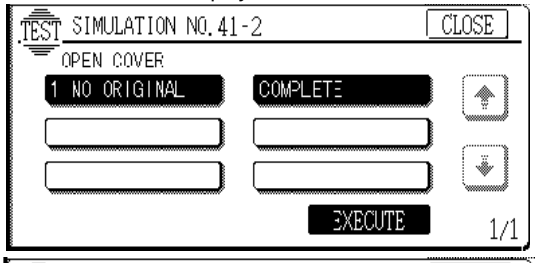
OCSW	Document cover state	Normal display:Open	Highlighted display: Close
PD*	Document sensor	Normal display: Document empty	Highlighted display: Document exist

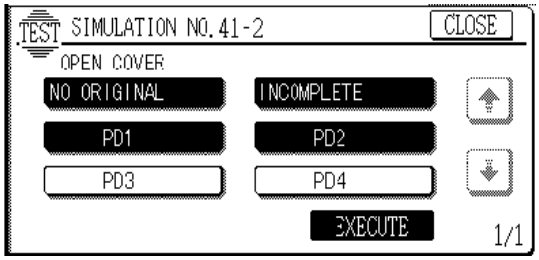


Note	

41 - 2

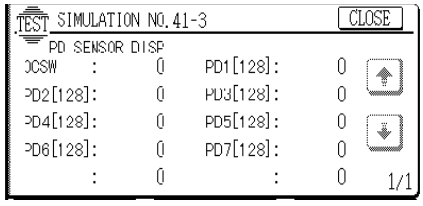
Purpose	Adjustment
Function (Purpose)	Used to adjsut the document size sensor detection level.
Section	Others
Item	Operation
Operation/ Procedure	1. Open the original table, and press the [EXECUTE] key with no original on the original table. The sensor level setting with no original on the table is performed. (Normal case) The COMPLETE display is highlighted (for 1 sec), then it returns to the normal display. (Abnormal case) The INCOMPLETE display and the abnormal sensor name are highlighted. 2. Set an A3 paper (11" x 17") and press the [EXECUTE] key. The sensor level setting with original is performed. (Normal case) The COMPLETE display is highlighted (for 1 sec), then it returns to the normal display. The "NO ORIGINAL" display turns to "A3 ORIGINAL". (Abnormal case) The INCOMPLETE display and the abnormal sensor name are highlighted.





Note	

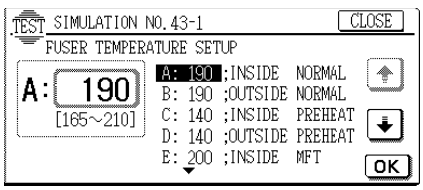
41 - 3	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the document size sensor and the related circuit. (The document size sensor output level can be monitored with the LCD.)
	Section	Others
	Item	Operation
	Operation/ Procedure	The detection output level of each sensor is displayed in real time. OCSW Document cover state PD* Document sensor ∗ The value in [ ] shown at the right of each sensor name is the threshold value.
	Note	



43

43 - 1	Purpose	Setting
	Function (Purpose)	Used to set the fusing temperature in each operation mode.
	Section	Fixing (Fusing)
	Item	Operation
	Operation/ Procedure	1. Select the kind of lamps and the operation mode with [↑], [↓] keys. 2. Enter the set value with the 10-key. 3. Press the [OK] key to set the fusing temperature set in procedure 2. Used to set the fusing temperature in the normal mode and in the power save mode. INSIDE NORMAL: The control temperature in the normal mode and when the center lamp is heated. (190) OUTSIDE NORMAL: The control temperature in the power save mode (pre-heat mode) and the side lamps are heated. (190) INSIDE PREHEAT: The control temperature in the manual copy mode when the center lamp is heated. (*1) OUTSIDE PREHEAT: The control temperature in the manual copy mode when the side lamps are heated. (*2) INSIDE MFT: The control temperature in the manual copy mode when the center lamp is heated. (200) OUTSIDE MFT: The control temperature in the manual copy mode when the side lamps are heated. (200) ( ): Default

Destination	Pre-heat mode fusing temperature set value		
	MODEL		
	AR-230/280/285 series AR-2X1/2X6/3X1/250 series	AR-330/335 series AR-3X6 series	AR-4XX series
U.S.A. (Inch)	125	130	140
Canada (Inch)	125	130	140
Other (Inch)	125	130	140
Japan	130	130	140
Other (AB)	125	130	140
Europe (AB)	110	130	140
U.K. (AB)	110	130	140
Aus. (AB)	110	130	140



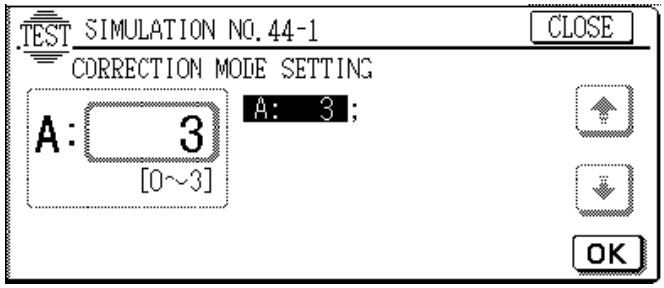
	Note	Be sure to set to the default value. If not, a trouble may occur.

44

44 - 1

Purpose	Setting
Function (Purpose)	Used to set whether the correction functions of the image forming (process) section are valid or not.
Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
Item	Operation
Operation/ Procedure	Enter the code number corresponding to each correction operation with the 10-key and press the OK key. To enable all the correction functions, set to 3. (Note) The default setting must be 3.

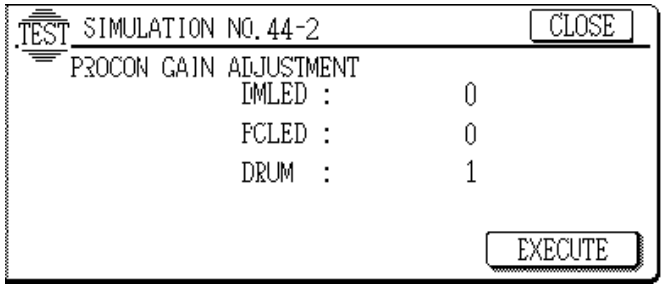
Set value	Developing bias voltage correction limit	OPC drum sensitivity correction
0	Disable	Disable
1	Disable	Enable
2	Enable	Disable
3	Enable	Enable



Note	(Note) It must be set to the default 3.

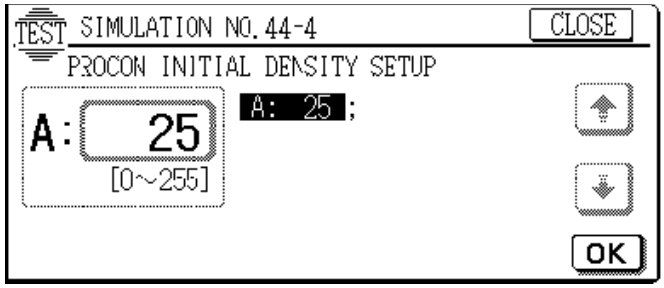
44 - 2

Purpose	Adjustment
Function (Purpose)	Used to adjust the sensitivity (gain) of the OPC drum mark sensor and the image density sensor.
Section	Image process (Photoconductor/Developping/Transfer/Cleaning) Photo conductor
Item	Operation
Operation/ Procedure	When the [EXECUTE] key is pressed, it is highlighted and the main motor rotates to start the drum marking sensor and the image density sensor gain adjustment. (The adjustment is automatically performed.) After completion of the adjustment, the [EXECUTE] key returns to the normal display and the main motor stops. At that time, the gain level of each sensor is displayed. If the adjustment is not completed properly, the ERROR display is shown. DMLED: Drum marking sensor gain adjustment value PCLED: Image density sensor gain adjustment value DRUM: Kinds of drums



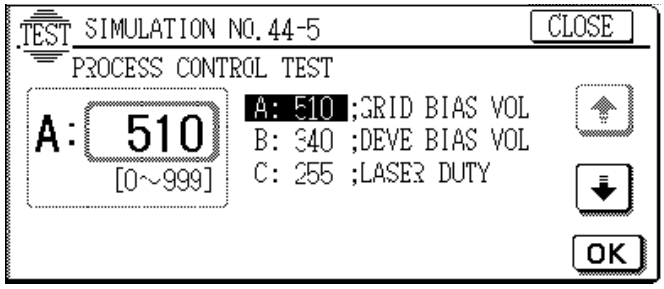
Note	

44 - 4		
	Purpose	Setting
	Function (Purpose)	Used to set the target image (reference) density level in the developing bias voltage correction. (for OPC drum type B)
	Section	Image process (Photoconductor/Developping/Transfer/Cleaning)
	Item	Data Adjust/Setting data
	Operation/ Procedure	1. Enter the set value (38) with the 10-key. 2. Press the [OK] key. (The value entered in procedure 1 is set.) Set value: 38



	Note	It must be set to 38.

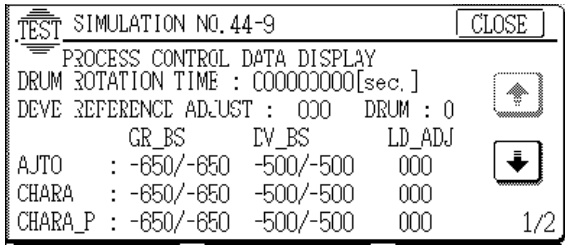
44 - 5		
	Purpose	Setting
	Function (Purpose)	Used to set various parameters (main charger grid voltage, laser beam power, correction start developing bias voltage) in developing bias correction. (for OPC drum type B)
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
	Item	Operation
	Operation/ Procedure	1. Select the parameter mode with [↑], [↓] keys. 2. Enter the parameter with the 10-key. 3. Press the [OK] key. (The value entered in procedure 2 is set.) GRID BIAS VOL: Reference charging voltage level in patch forming (380) (Set value) DEVE BIAS VOL : Reference developing bias voltage level in patch forming (210) (Set value) LASER DUTY: Laser duty level in patch forming (255)

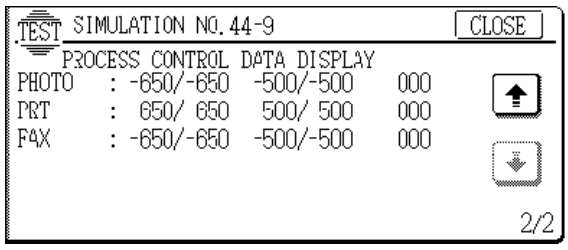


	Note	Be sure to set to the specified value. If not, the print image density may be disturbed.

44 - 9		
	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the data on the result of the image forming section correction (process correction) (the corrected main charger grid voltage in each print mode, developing bias voltage, the laser power, etc.) (This simulation allows to check whether the correction is executed properly or not.)
	Section	Image process (Photoconductor/Developping/Transfer/Cleaning)
	Item	Data Operation data (Machine condition)

Operation/ Procedure	Used to display the drum rotating time and the high voltage output in each copy mode and the laser power correction power. DRUM ROTATION: Drum rotating time (sec) DEVE RFERENCE ADJUST: Toner concentration correction amount DRUM: Drum identification result (1: Type A 2: Type B C: Others) GR_BS: Main charger grid voltage level (*1) DV_BS: Developing bias voltage level (*1) ((Display) *1 : Sim 8-1, 8-2 Set voltage/actual output voltage (including corrected amount) LD_AD: Laser power correction power display (mW) AUTO: Auto mode CHARA: Character mode CHARA_P: Character/photo mode PHOTO: Photo mode PRT: Printer mode FAX: Fax mode (Japan only)





Note	

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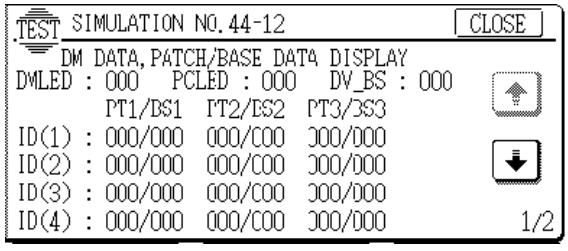
44 - 12	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the toner image patch density date in correction operation of the image forming section. (This simulation allows to check whether the correction is executed properly or not.)
	Section	Image process (Photoconductor/Developping/Transfer/Cleaning)
	Item	Data Operation data (Machine condition)
	Operation/ Procedure	The latest developing bias correction data is displayed. The sensor detection level (density) in the toner image patch section/OPC drum base during the developing bias corection is displayed. DMLED: Drum marking sensor gain adjustment level PCLED: Image density sensor gain adjustment level DV_BS: The developing bias voltage level when forming PT2/BS2 of ID (1) PT1/BS1: No. 1 toner image patch section/Drum base sensor detection level PT2/BS2: No. 2 toner image patch section/Drum base sensor detection level PT3/BS3: No. 3 toner image patch section/Drum base sensor detection level ID (n) : Sequence number of correction operation



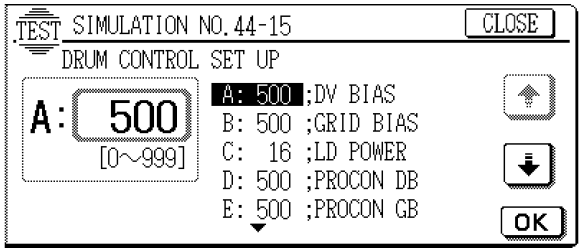
Note	

44 - 15		
	Purpose	Setting
	Function (Purpose)	Used to set the correction vlaues of various parameters (maincharger grid voltage, laser beam power, developing bias voltage) in the image forming operation and image forming section correction for OPC drum type A.
	Section	Image process (Photoconductor/Developing/Transfer/Cleaning)
	Item	Operation
	Operation/ Procedure	Used to set various parameters of image forming operation and image forming section correction operation for drum type A.

1. Select the correction item with [↑], [↓] keys.
2. Enter the set value with the 10-key
3. Press the [OK] key. (The value entered in procedure 2 is set.)

DV BIAS:	Developing bias base voltage (Equivalent to SIM 8-1 for Drum type B.) (500)
GIRD BIAS:	Main charger grid voltage (Equivalent to SIM 8-2 for drum type B.) (475)
LD POWER:	Laser power (Equivalent to SIM 61-2 for drum type B.) For AR-2X1/3X1/4XX/250/XX6 series, set to "10" (default). For AR-230/250/285/330/335 series, set to "16."
PROCON DB:	Base developing bias voltage in toner image patch forming (in developing bias correction) (Equivalent to SIM 44-5B) (500) (Correction value to SIM 44-5B)
PROCON GB:	Base main charger grid voltage (Equivalent to SIM 44-5A in drum type B) (500) (Correction value to SIM 44-5A)
PROCON TARGET:	Target image (reference) density level in developing bias voltage correction (Equivalent to SIM 44-4 4 in drum type B) (58)

Be sure to set to the specified value.



Note	Be sure to set to the specified value. If not, the print image density may be disturbed.

46

46 - 2		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust the copy density in the copy mode (binary/multi-value - auto, character and photo, photo mode). (The overall print density in each mode (all of the specified density set for each density level (display value)) can be adjusted in each mode.)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.)

2. Enter the adjustment value with the 10-key.
3. Press the [OK] key or the PRINT button.
   The value entered in procedure 2 is set.
   When the PRINT key is pressed, copying is performed.

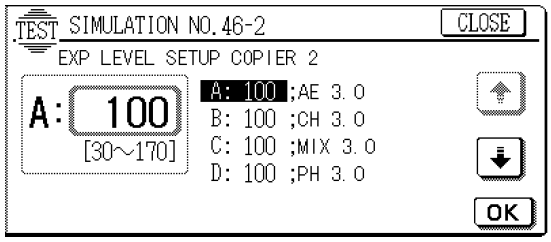
(Note) When a set value (density adjustment value in density level 3) in the left column of the table below is changed with this simulation, the set value (the overall density level set value) in the right column is changed accordingly.
The parameters of the right and the left simulations and their adjustment items are the adjustment values in the same print mode.
The result of adjustment by the simulation executed at the last is reflected in actual printing.
The print density is normally adjusted by SIM 46-2.
To customize the print density for the density level display value according to the user's request, use the simulation in the right column. (Excluding auto mode/simulation 46-8.)

(AR-230/280/285/330/335 series)

Binary mode

Set with SIM 46-2. Parameter to be changed	Linked simulation data
AE3.0 (AE)	
CH3.0 (Character)	Sim 46-9
MIX3.0 (Character/Photo)	Sim 46-10
PH3.0 (Photo)	Sim 46-11

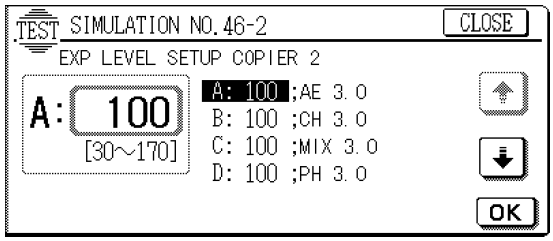
Default: 100



(AR-2X1/3X1/4XX/250/XX6 series)

	Set with SIM 46-2. Parameter to be changed	Linked simulation data
A	AE3.0 (AE)	
B	CH3.0 (Character)	Sim 46-9
C	MIX3.0 (Character/Photo)	Sim 46-10
D	PH3.0 (2)	Sim 46-11 (Photo error diffusion)
E	PH3.0 (256)	Sim 46-7 (Photo multi value dither) (Japan only)

∗ For EX, the above value E is disabled.



Note	

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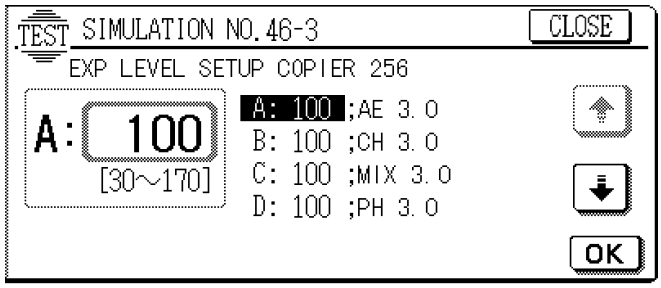
46 - 3		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust the copy density in the copy mode (multi value-auto, character and photo, photo mode). (The overall print density in each mode (all of the specified density set for each density level (display value)) can be adjusted in each mode.) (AR-230/280/285/330/335 series only)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑], [↓] key. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. (Note) When a set value (density adjustment value in density level 3) in the left column of the table below is changed with this simulation, the set value (the overall density level set value) in the right column is changed accordingly. The parameters of the right and the left simulations and their adjustment items are the adjustment values in the same print mode. The parameters of the right and the left simulations and their adjustment items are the adjustment values in the same print mode. The result of adjustment by the simulation executed at the last is reflected in actual printing. The print density is normally adjusted by SIM 46-2. To customize the print density for the density level display value according to the user's request, use the simulation in the right column. (Excluding auto mode/SIM 46-4.)

(Multi value mode)

Sim46-3 Parameter set/changed by SM 46-3	Linked simulation data
AE3.0 (AE)	
CH3.0(Character)	Sim46-5
MIX3.0(Character/photo)	Sim46-6
PH3.0(Photo)	Sim46-7

Default: 100



Note

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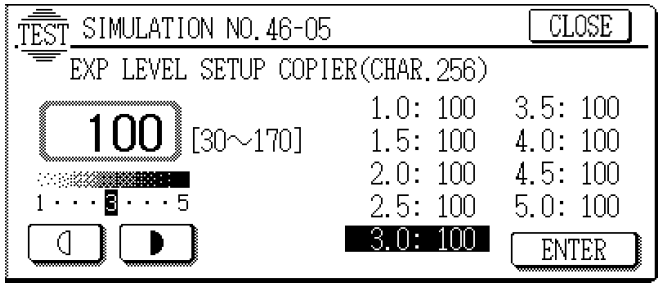
46 - 5

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (multi Auto mode). An arbitrary print density can be set for each density level (display value). (AR-230/280/285/330/335 series only)
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the density level with the density adjustment key. (The selected value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the ENTER key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. To customize the print density for the density level display value according to the user's request, use this simulation. Default: 100



Note

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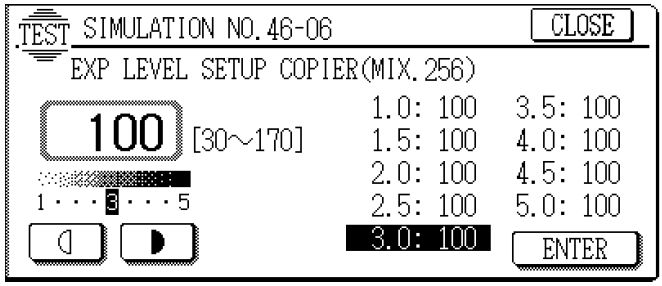
46 - 6

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (multi value-character, photo mode). An arbitrary print density can be set for each density level (display value). (AR-230/280/285/330/335 series only)
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the density level with the density adjustment key. (The selected value is highlighted.)

2. Enter the adjustment value with the 10-key.
3. Press the ENTER key or the PRINT button. (The value entered in procedure 2 is set.)

When the PRINT button is pressed, copying is performed.
To customize the print density for the density level display value according to the user's request, use this simulation.
Default: 100



Note

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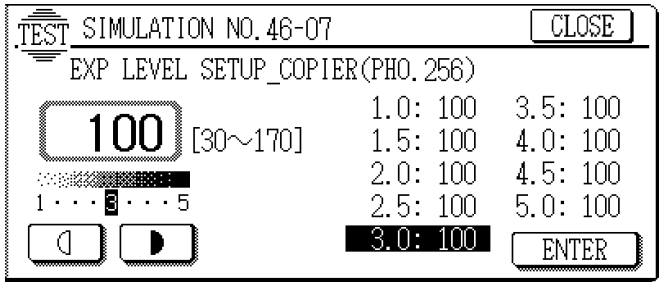
46 - 7

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (multi value - photo mode). (Japan only)
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the density level with the density adjustment key. (The selected value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [ENTER] key or the [PRINT button]. (The value entered in procedure 2 is set.) When the [PRINT button] is pressed, copying is performed. To customize the print density for the density level display value according to the user's request, use this simulation. Default: 100



Note

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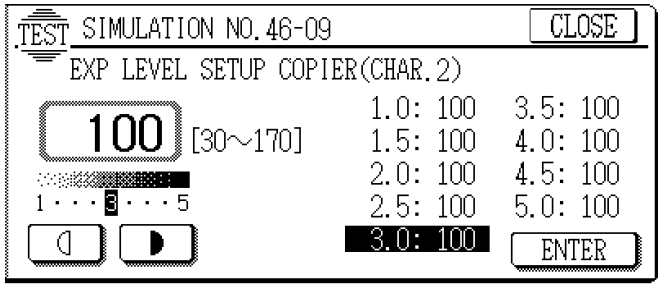
46 - 9

Purpose	Adjustment
Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - character mode).
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the density level with the density adjustment key. (The selected value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the ENTER key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. To customize the print density for the density level display value according to the user's request, use this simulation.

Default: 100



Note	

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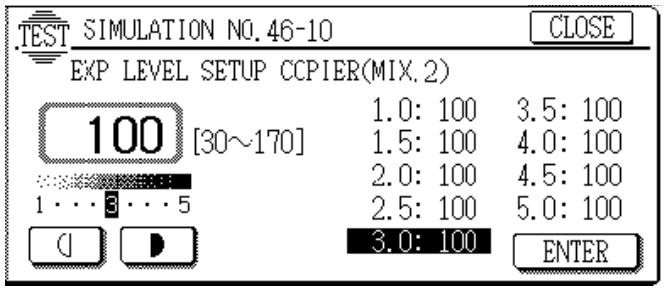
46 - 10	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - character, photo mode). An arbitrary print density can be set for each density level (display value).
	Section	
	Item	Picture quality
	Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. To customize the print density in each mode according to the user's request, use this simulation to adjust the print density. Default: 100



	Note	

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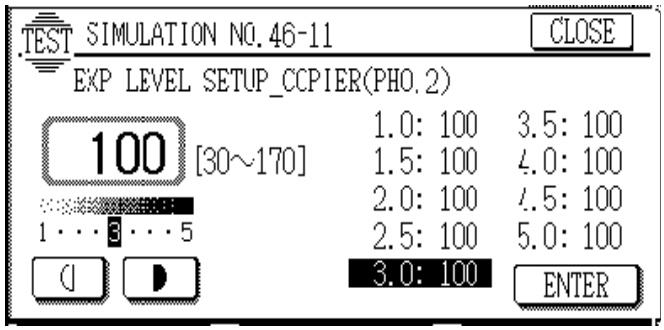
46 - 11	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print density for each density level (display value) in the copy mode (binary - photo mode). An arbitrary print density can be set for each density level (display value).
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. To customize the print density in each mode according to the user's request, use this simulation to adjust the print density.

Default: 100



Note	

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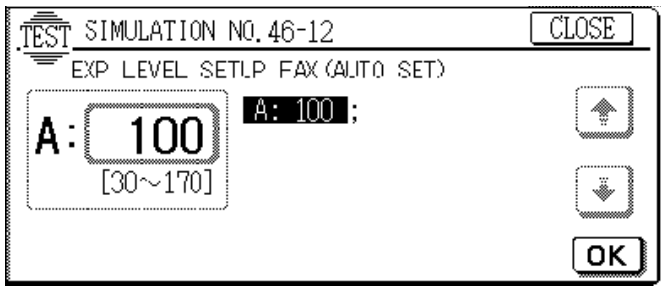
46 - 12	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print density in the FAXmode (all modes). The print densities in all the modes (all the specified levels set for all the density levels (display values)) can be collectively adjusted. (Same as SIM 46-13A.) (FAX model only)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑], [↓] key. (The set value is highlighted.) 2. Enter the adjustment value wit the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 1 is set.) When the PRINT button is pressed, copying is performed. When the adjustment value is changed, the print density in the other modes (All FAX modes) is similarly changed. (The set values of SIM 46-13 to -16 are changed accordingly.) Normally the print density adjustment in the FAX mode is made with this simulation. To make the print density adjustment in each mode, use SIM 46-13 to 46-16.) (Note) When the set value in the left column of the table below is changed with this simulation, the set value (overall density level adjustment value) in the right column is also changed accordingly. The parameters in the right and the left columns and the adjustment items are the adjustment values in the same print mode. The result of the adjustment set by the last simulation is applied to the actual print. Normally SIM 46-12 is used to adjust the print density. To customize the print density for the density level display according to the user's request, the simulation in the right column is used. (FAXmode)

Parameter set/changed by SIM 46-12	Linked simulation data
Normal character mode	Sim 46-13
Small charater mode	Sim 46-14
Fine mode	Sim 46-15
Super fine mode	Sim 46-16

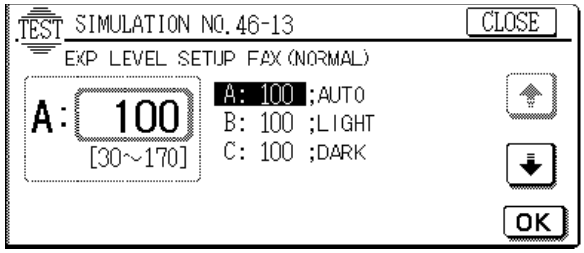
Default: 100



Note	

46 - 13

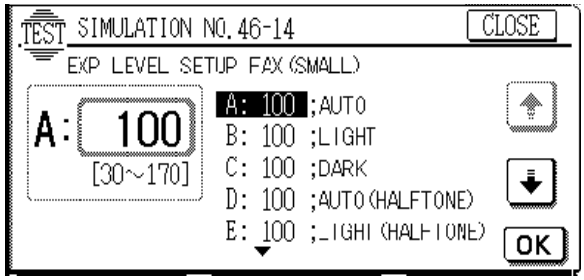
Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (normal character mode). (SIM 46-13A is same as SIM 46-12.) (FAX model only)
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the [PRINT button]. (The value entered in procedure 2 is set.) When the [PRINT button] is pressed, copying is performed. To customize the print density in each mode according to the user's request, use this simulation to adjust the print density. Default: 100

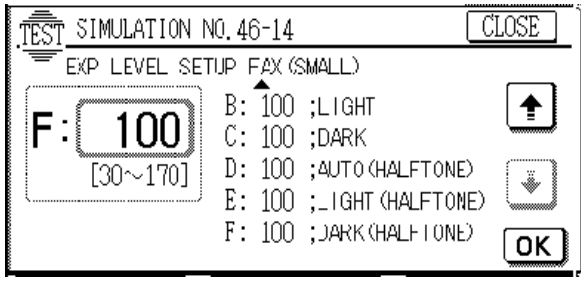


Note	

46 - 14

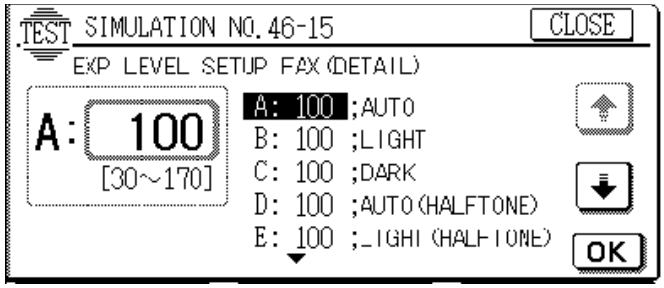
Purpose	Adjustment
Function (Purpose)	Used to adjust the print density in the FAX mode (small character modes). (FAX model only)
Section	
Item	Picture quality Density
Operation/ Procedure	1. Select the print mod with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed. To customize the print density in each mode according to the user's request, use this simulation to adjust the print density. Default: 100

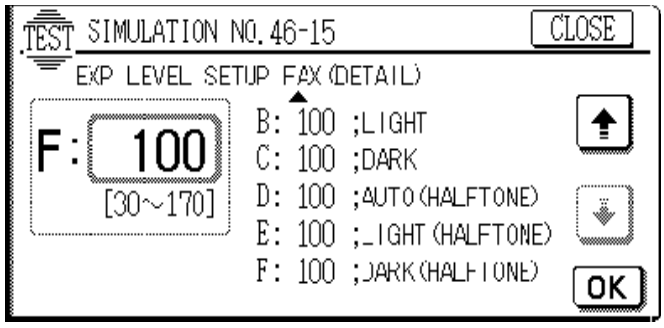




Note	

46 - 15		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print density in the FAX mode (fine modes). (FAX model only)
	Section	
	Item	Picture quality
	Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the [PRINT] button. (The value entered in procedure 2 is set.) When the [PRINT] button is pressed, copying is performed. To customize the print density in each mode according to the user's request, use this simulation to adjust the print density. Default: 100

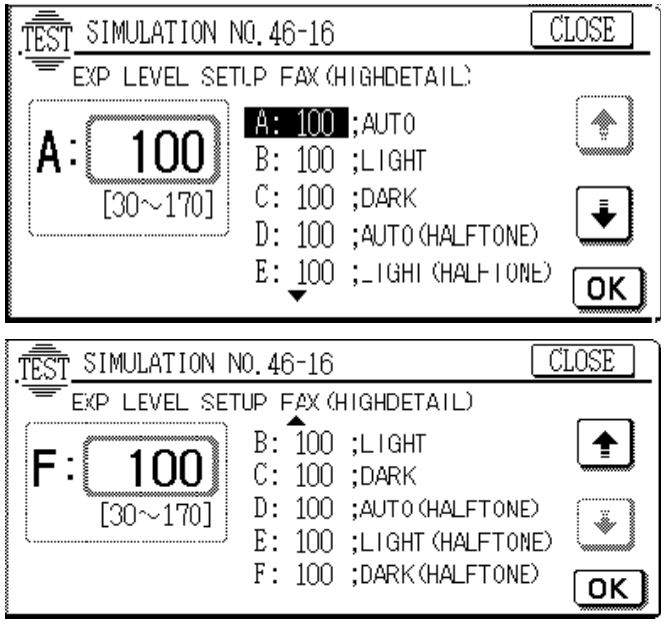




	Note	

46 - 16		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print density in the FAX mode (ultra fine modes). (FAX model only)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑], [↓] keys. (The set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the PRINT button. (The value entered in procedure 2 is set.) When the PRINT button is pressed, copying is performed.

To customize the print density in each mode according to the user's request, use this simulation to adjust the print density.
Default: 100



Note	

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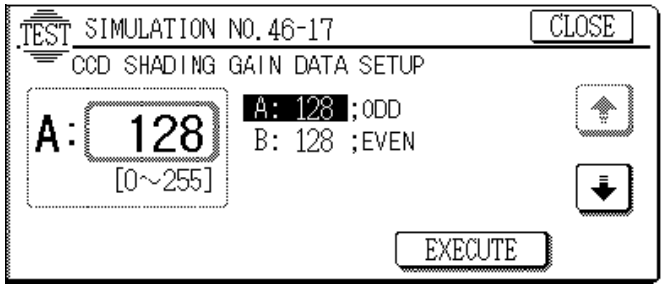
46 - 17		
	Purpose	Setting/Operation data output/Check (Display/Print)
	Function (Purpose)	Used to execute shading correction and display the correction value.
	Section	
	Item	Operation
	Operation/ Procedure	1. Select the set item with [↑], [↓] keys. (The selected item is highlighted.) 2. Press the [EXECUTE] key. The shading correction is executed and the correction value is displayed.



Note	

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46 - 18		
	Purpose	Adjustment
	Function (Purpose)	Used to adjust γ (density gradient) in each copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑] key or [↓] key. (The display of the set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the [PRINT] key. The value entered in procedure 2 is set. If the [PRINT] key is pressed, copying is performed.

With the following setting, the density gradient (γ) can be changed.

A: Auto exposure mode (Center 64, 0 ~ 127)

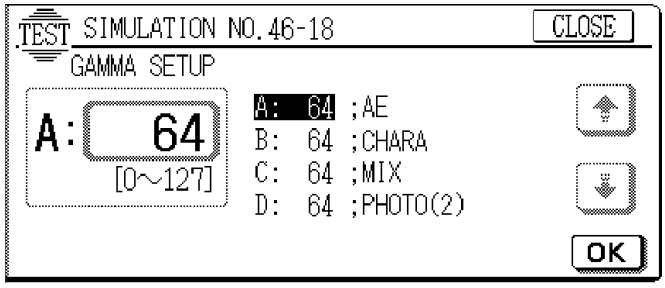
B: Character mode (Center 64, 0 ~ 127)

C: Character, Photo mode (Center 64, 0 ~ 127)

D: Photo mode (Error diffusion) (Center 64, 0 ~ 127)

(Note) The greater the value is, the greater the inclination is.

Set all the values to the default value 64.



Note

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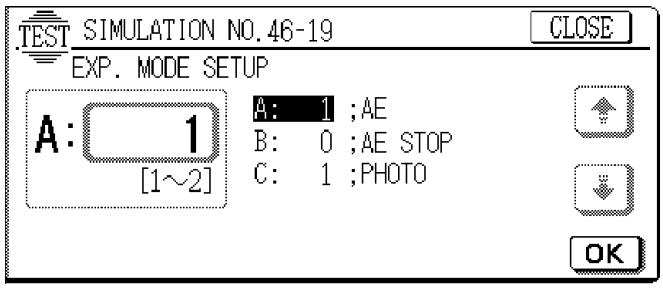
46 - 19

Purpose	Adjustment
Function (Purpose)	Used to adjust γ (density gradient) and set the density detection area in the auto copy mode and to set the image process mode in the photo copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
Section	
Item	Picture quality Density

Operation/ Procedure

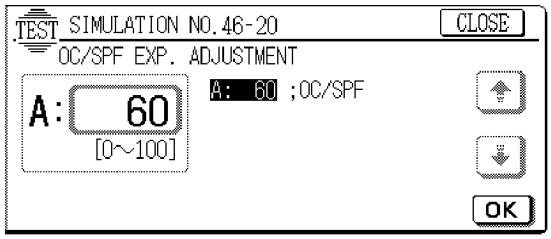
1. Select the desired mode with [↑] key or [↓] key.
   (The display of the set value is highlighted.)
2. Enter the value with the 10-key.
3. Press the [OK] key or the [PRINT] key.
   The value entered in procedure 2 is set.
   - A: Auto exposure mode setting
     1: Picture quality priority mode
     2: Toner consumption priority mode
     (Default: Japan = 1, EX = 2)
   - B: Auto exposure (Density detection) mode setting
     0: OFF (All surface density detection)
     1: ON (Image lead edge section density detection)
     (Default: 0)
   - C: Photo mode image process setting
     1: Memory dither 8x8 mode
     2: Memory dither 8x8 mode
     3: Error diffusion photo mode
     (Default: Japan = 1, EX = 3)

(Note) Except for Japan, the above C is fixed to "3."



Note

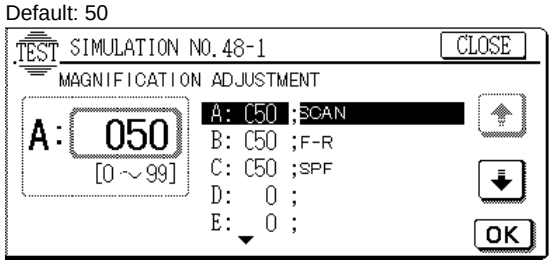
46 - 20	Purpose	Adjustment
	Function (Purpose)	Used to adjust the copy density correction in the SPF copy mode for the document table copy mode. Adjustment is made so that the copy density is the same as that in the document table copy mode. (Target models: AR-2X1/3X1/4XX/250/XX6 series)
	Section	
	Item	Picture quality Density
	Operation/ Procedure	1. Select the print mode with [↑] key or [↓] key. (The display of the set value is highlighted.) 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key or the [PRINT] key. (The value entered in procedure 2 is set.) A: OC/SPF exposure correction value Set range: 0 ~ 100 Center value: 50 (Default: 60)



	Note	

48

48 - 1	Purpose	Adjustment
	Function (Purpose)	Used to adjust the copy magnification ratio (main scanning direction, sub scanning direction).
	Section	ICU
	Item	Picture quality
	Operation/ Procedure	1. Select the adjustment mode with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key. The value entered in procedure 2 is set. a. Sub scan direction magnification ratio --- (SCAN) The horizontal print magnification ratio (in the paper transport direction) of the image is adjusted by changing the scan speed in the paper transport direction. b. Main scan direction magnification ratio --- (F-R) The vertical print magnification ratio (front frame to near frame) is adjusted in the image process section by the software operation. c. Sub scan direction magnification ration adjustment value (When SPF is used) --- (SPF) SPF The horizontal print magnification ratio (in the paper transport direction) is adjusted by changing the SPF document transport speed. (When the set value is changed by 1, the magnification ratio is changed by about 0.1%.) Default: 50



	Note	

50

50 - 1	Purpose	Adjustment
	Function (Purpose)	Used to adjust the copy image position and the void area (image loss) on the print paper in the copy mode. (The same adjustment can be made with SIM 50-2 (simple method).)
	Section	
	Item	Picture quality Image position
	Operation/ Procedure	1. Select the adjustment item with [↑] [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key. (The adjustment value entered in procedure 2 is set.)

(RRC-A)
This set value is used to align the document image lead edge ad the scan image data lead edge in the document table scan mode.
After starting scanning, the image lead edge position is determined by using the scanner home position detection signal (MHPS) OFF timing as the reference.
RRC-A set value = Time (distance) from the output of the scanner home position detection signal (MHPS OFF) to the image lead edge position.
(0 ~ 99: Default value 50)
If this setting is not made properly, the image lead edge position (image loss) varies depending on the copy magnification ratio.
When the set value is increased, the image position is shifted in the advancing direction on the paper.
When the set value is changed by 1, the image lead edge position is varied by about 0.24mm (about 0.29mm for AR-4XX series).

(SPF)
This set value is used to align the document image lead edge position and the scan image data lead edge position in the SPF scan mode.
After starting scanning, the can image lead edge position is determined by using the resist sensor detection signal (REGS ON) timing as the reference.
RRC-A set value = Time (distance) from the output (resist sensor detection signal (REGS ON) to the image lead edge position.
(0 ~ 99: Default 50)
If this setting is not made properly, the image lead edge position (image loss) on the copy paper may vary depending on the copy magnification ratio.
When the set value is increased, the image position is shifted in the advancing direction of the copy paper.
When the set value is changed by 1, the image lead edge position is changed by about 0.1mm.

(RRC-B)
This set value is used to adjust the relative positions of the image position on the OPC drum and the copy paper.
This adjustment is made by adjusting the time from the output timing of the image lead edge signal (LD START signal) to RRC ON.
At the timing of LD START signal output, the print image is made on the OPC drum at an optional position with the laser beam.
(0~99: Default 50)
Actually the RRC ON timing is determined as follows:
RRC ON timing = This set value (RRC-B) - Lead edge void set value (DEN-A)
When the set value is increased, the RRC ON timing is delayed, decreasing the led edge void area.
When the set value is changed by 1, the lead edge void area is changed by about 0.17mm (about 0.21mm for AR-4XX series).

(Note)
The value of RRC-A must be properly set in advance to this adjustment.

(IMAGE LOSS)
This set value (timing adjustment value) is used to determine the lead edge image loss and the image lead edge reference position by using the scan image lead edge position set with RRC-A.
Effective print data is determined from the image lead edge position data scanned with this set value.
The image lead edge reference position on the document is at 2mm from the right of the document position alignment plate.
The effective image (effective image data) is determined by scanning the image.
(0~99: Default 20)
When the set value is increased, the image loss becomes greater.
When the set value is changed by 1, the image loss is changed by about 0.1mm.

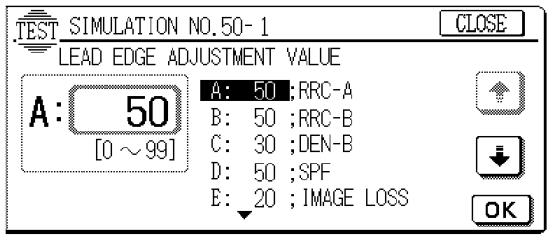
(DEN-A)
Used to set the timing for the RRC ON timing (paper timing) set with EEC-B.
RRC ON timing = (RRC-B) - Lead edge void set value (DEN-A)
When this adjustment value is changed, the print image position for the paper position is changed. As a result, the lead edge void area is also changed.
When the set value is increased, the RRC ON timing is advanced and the lead edge void area becomes greater.
When the set value is changed by 1, the lead edge void area is changed by about 0.1mm.
(0~99: Default value 50)

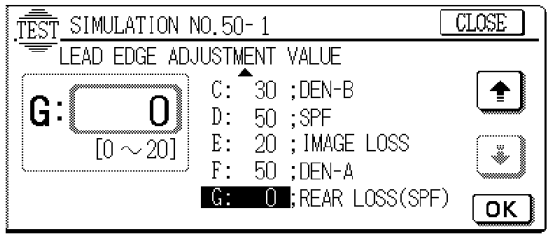
(DEN-B)
The rear edge void area is adjusted by controlling the effective print data length with the image lead edge signal (LD START signal) output from the ICU as the reference.
The effective image (effective image data) is determined when scanning the image.
When the set value is increased, the rear edge void area becomes great.
When the set value is changed by 1, the rear void area is changed by about 0.1mm.
(0~99: Default 50)

(REAR LOSS (SPF)) (AR-2X1/3X1/4XX/250/XX6 series only)
Used to adjust the rear edge image loss in the SPF copy mode.
The greater the set value is, the greater the rear edge image loss is.
When the set value is changed by 1, the rear edge image loss is changed by about 1mm.
(0~20: Default 0)

Adjust in the following sequence:

1) Set the image loss amount (IMAGE LOSS) and the paper lead edge void amount (DEN-A) to arbitrary values (20). (0~99: 0.1mm/step)
2) Adjust the document scan start position (RRC-A) so that the actual copy image loss becomes the value set in procedure 1. (0~99: 0.24mm/step) (0.29mm/step (AR-4XX series))
3) Adjust the resist roller clutch ON timing (RRC-B) so that the actual copy image loss becomes the value set in procedure 1. (0~99: 0.17mm/step)
4) In the SPF copy mode, adjust the SPF image position (SPF) to the value set in procedure 1). (0~99, 0.1mm/step)
5) Adjust the rear edge image loss (REAR LOSS (SPF)) in the SPF copy mode. (0~20, 1mm/step) (AR-2X1/3X1/4XX/250/XX6 series only)
6) Adjust the rear edge void amount (DEN-B). (0~99: 0.1mm/step)





Note	

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50 - 2

Purpose	Adjustment
Function (Purpose)	Used to adjust the copy image position and the void area (image loss) on the print paper in the copy mode. (Simple adjustment) (This simulation allows the same simulation with SIM 50-1 more simply.)
Section	
Item	Picture quality　　Image position
Operation/ Procedure	1. Select the adjustment item with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key. (The value entered in procedure 2 is set.)

IMAGE LOSS
DEN-A
DEN-B
} Same as SIM 50-1

This simulation is used to automatically adjust the image loss, the void area, and the image position by directly entering the paper lead edge and the image shift (in the unit of 0.1mm) in 400% (200% for the SPF) copy.

a. Distance (Document table mode 400%) up to the scale of 10mm from the image lead edge a L3

b. Distance from the paper lead edge to the image lead edge → L2

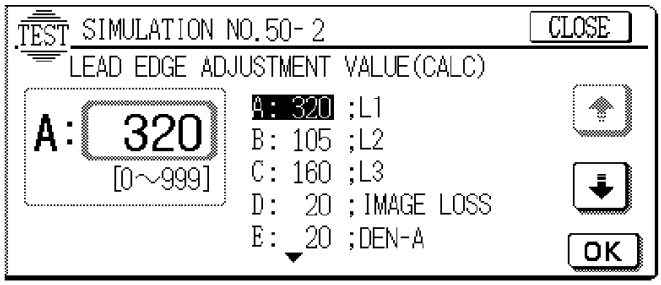
c. Distance from the image lead edge to the scale of 10mm (SPF mode 200%) → L3

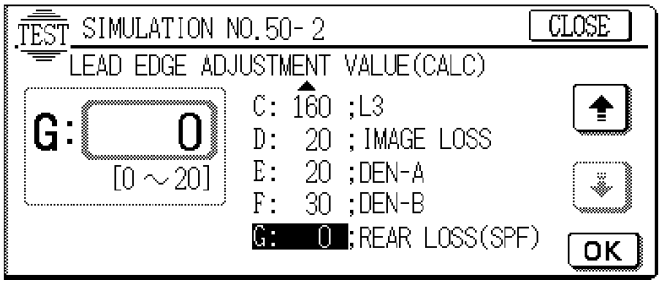
∗ The measurement value is multiplied with 10 to enter.

With the above procedure, the values of RRC-A and RRC-B in SIM 50-1 are automatically calculated and set.By directly setting the values (actual dimensions [mm] x 10) of IMAGE LOSS, DEN-A and DEN-B, the lead edge image loss, the lead edge void area, and the rear edge void area can be set.

By setting the image loss, DEN-A, DEN-B (actual dimension (mm) x 10) and REAR LOSS (SPF) (actual dimension (mm)) directly, the lead edge image loss, the lead edge void area, the rear edge void area and the rear edge image loss (SPF) can be set.

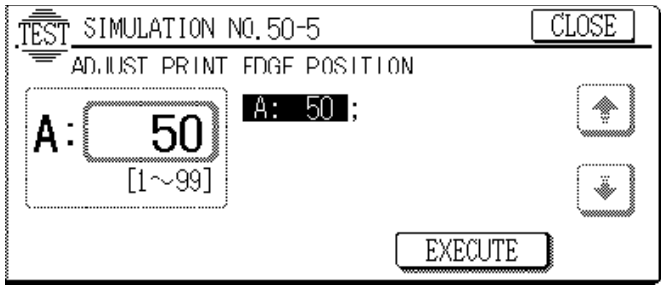
Code		Adjustment item	Adjustment value	Note
A	L1	Distance between the image lead edge and the scale of 10mm.		When the image lead edge position varied depending on the copy magnification ratio, change the set value.
B	L2	Distance between the paper lead edge and the image lead edge.		
C	L3	Distance between the image lead edge and the scale of 10mm (SPF mode).		When the image lead edge position varied depending on the copy magnification ratio, change the set value.
D	IMAGE LOSS	Lead edge image loss	1.5 to 3.0mm	The greater the set value is, the greater the image loss is.
E	DEN-A	Lead edge void area	1.5 to 3.0mm	The greater the set value is, the greater the void area is.
F	DEN-B	Rear edge void area	1.5 to 3.0mm	The greater the set value is, the greater the void area is.
G	REAR LOSS (SPF)	Rear edge image loss (SPF mode)		The greater the set value is, the greater the image loss is. (AR-2X1/3X1/4XX/250/XX6 series only)



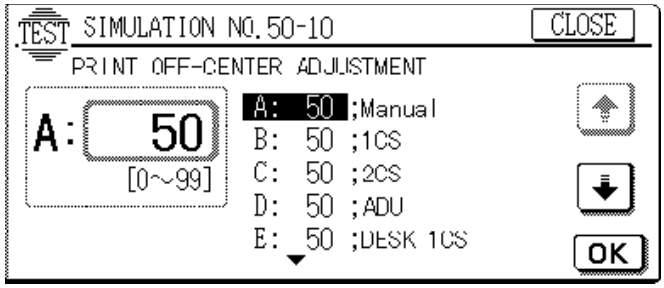


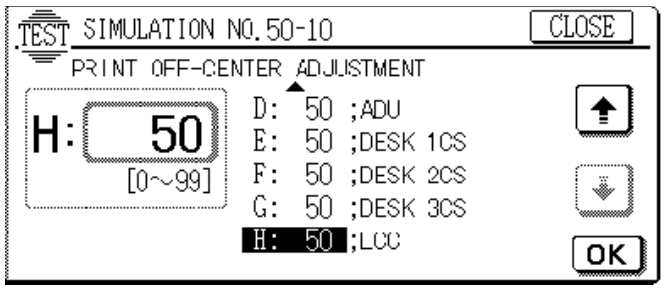
Note

50 - 5	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print image position (top margin) on the print paper in the print mode.
	Section	
	Item	Picture quality　　Print area
	Operation/ Procedure	1. Enter the adjustment value with the 10-key. 2. Press the [EXECUTE] key to set the adjustment value entered in procedure 1. When the set value is increased, the top margin is increased. When the set value is changed by 1, the top margin is changed by about 0.1mm. Default: 50
	Note	

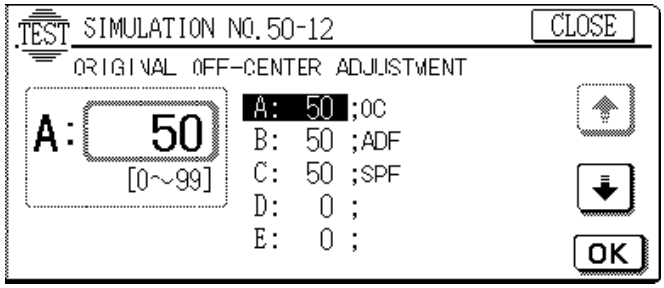


50 - 10	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print image center position. (Adjustment can be made for each paper feed section.)
	Section	ICU
	Item	Picture quality　　Image position
	Operation/ Procedure	1. Select the adjustment item (paper feed section) with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key to set the adjustment value entered in procedure 1. When the set value is increased, shift is made forward. When decreased, backward. When the set value is changed by 1, the shift is changed by about 0.1mm. A, B, C, E, F, G, H : Default 50 D : Default 58
	Note	





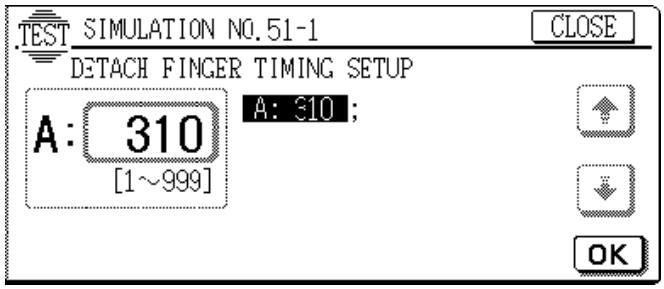
50 - 12	Purpose	Adjustment
	Function (Purpose)	Used to adjust the print image center position. (Adjustment can be made for each document mode.)
	Section	ICU
	Item	Picture quality Image position
	Operation/ Procedure	1. Select the adjustment item (paper feed section) with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key to set the adjustment value entered in procedure 1. When the set value is increased, shift is made forward. When decreased, backward. When the set value is changed by 1, the shift is changed by about 0.1mm. Default: 50



	Note	

51

51 - 1	Purpose	Adjustment
	Function (Purpose)	Used to adjust the OPC drum separation pawl ON timing.
	Section	Image process (Photoconductor/Developping/Transfer/Cleaning)
	Item	Operation
	Operation/ Procedure	1. Enter the adjustment value with the 10-key. 2. Press the [OK] key. (The value entered in procedure 1 is set.) Time interval from the resist roller clutch (RRC) ON timing to the OPC drum separation pawl drive solenoid (PSPS) ON. When the set value is increased, the timing is delayed. When the set value is changed by 1, the timing is changed by about 1.0msec. (Default 310)

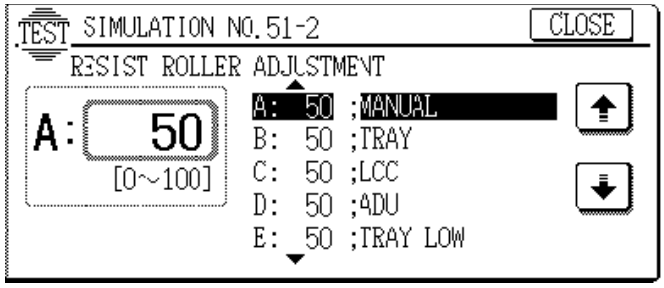


	Note	

51 - 2	Purpose	Adjustment
	Function (Purpose)	Used to adjust the contact pressure of paper onto the resist roller in each section (copier paper feed section, duplex paper feed section, SPF paper feed section). (When the print image position varies greatly for the paper or when a lot of paper jam troubles occur, the adjustment is required.)
	Section	Paper transport (Discharge/Switchback/Transport)
	Item	Operation
	Operation/ Procedure	1. Select the adjustment mode with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key. (The value entered in procedure 2 is set.)

Used to set the resist roller clutch (RRC) ON timing.
When the set value is increased, the timing is delayed and the paper pressure onto the resist roller is increased. When the set value is changed by 1, the timing is changed by about 1.0msec.

TRAY	Copier and desk paper feed high speed transport resist amount adjustment (45) (Default)
MANUAL	Manual paper feed resist amount adjustment (31) (Default)
LCC	LCC paper feed high speed transport resist amount adjustment (45) (Default)
ADU	ADF paper feed resist amount adjustment (30) (Default)
TRAY LOW	Copier and desk feed low transport resist amount adjustment (35) (Default)
LCC LOW	LCC paper feed low transport resist amount adjustment (45) (Default)
SPF	SPF paper feed resist amount adjustment (50) (Default)



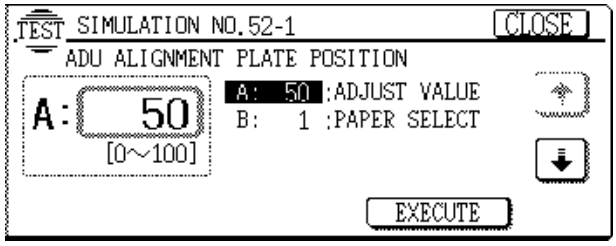
	Note

52

52 - 1	Purpose	Adjustment
	Function (Purpose)	Used to adjust the duplex print mode stacking capability. (Used to adjust the stop position of the paper tray width direction alignment plate in the duplex unit. The adjustment is executed by changing the width direction alignment plate home position in the software.)
	Section	Duplex
	Item	Operation
	Operation/ Procedure	1. Select mode B with [↑], [↓] keys. 2. Select the paper feed mode with the 10-key. 3. Press the [EXECUTE] key. 4. Select mode A with [↑], [↓] keys. 5. Enter the adjustment value with the 10-key. 6. Press the [EXECUTE] key.

If there is no paper on the duplex tray, paper feed is performed in the paper feed mode selected in mode B and one sheet of paper is transported to the duplex tray. Then the value set in procedure 5 is set and the alignment plate is operated according to the home position corresponding to the set value.
When the set value is changed by "1", it is changed by about 0.2mm.
When the set value is increased, the alignment plate paper width is decreased.
The set value is in the range of ±50 with 50 at the center.

Set item A: Alignment plate adjustment value (Default: 50)
B: Paper feed mode selection
1 : Manual
2: Upper cassette
3: Lower cassette
4: Desk top cassette
5: Desk middle cassette
6: Desk bottom cassette
7: LCC



Note	

53

53 - 1

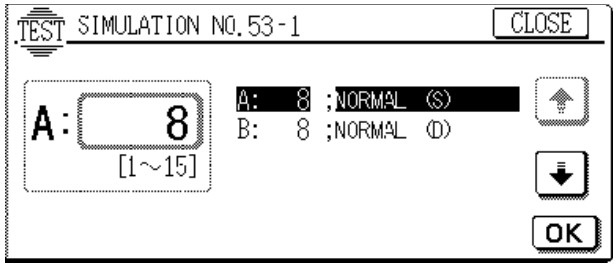
Purpose	Adjustment
Function (Purpose)	Used to adjust the document stop position in each operation mode of ADF/RADF. (Target model: AR-F230/S280/F280R/S330/280/285/335)
Section	ADF/RADF/UDH/SPF
Item	Operation
Operation/ Procedure	1. Select the adjustment mode with [↑], [↓] keys. 2. Enter the adjustment value with the 10-key. 3. Press the [OK] key. The value entered in procedure 2 is set. This is used to set the document transport belt stop timing.

NORMAL(S)	Norma l paper front surface, stop position adjustment value
NORMAL(D)	Normal paper back surface, stop position adjustment value
THIN (S)	Thin paper front surface, stop position adjustment value
THIN (D)	Thin paper back surface, stop position adjustment value

Relations between the adjustment value and the document stop position (Varies depending on machines.)

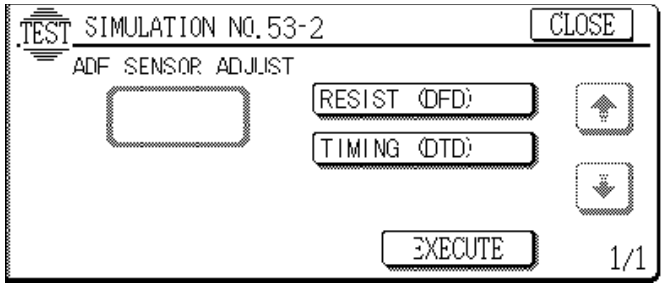
08: ±0.000mm	00: - 8.000mm	09: + 1.000mm
	01: - 7.000mm	10: + 2.000mm
	02: - 6.000mm	11: + 3.000mm
	03: - 5.000mm	12: + 4.000mm
	04: - 4.000mm	13: + 5.000mm
	05: - 3.000mm	14: + 6.000mm
	06: - 2.000mm	15: + 7.000mm
	07: - 1.000mm	

Default: 8



Note	

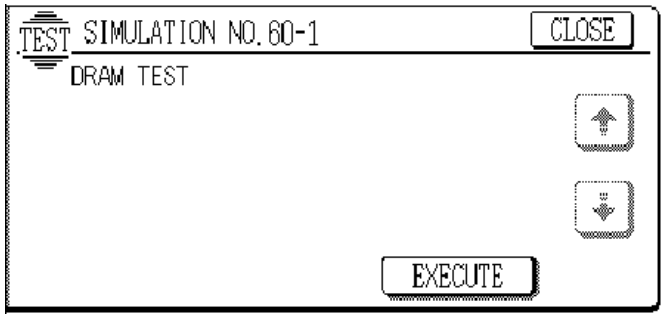
53 - 2	Purpose	Adjustment
	Function (Purpose)	Used to adjust the optical sensor sensitivity in the ADF/RADF. (Target models: AR-F230/S280/F280R/S330/280/285/335)
	Section	ADF/RADF/UDH/SPF
	Item	Operation
	Operation/ Procedure	1. The sensor names are displayed. Select the sensor to be adjusted with the key. 2. Press the [EXECUTE] key. The adjustment of the sensor selected in procedure 1 is started. During execution of the adjustment, the [EXECUTE] key is highlighted. If the [EXECUTE] key is pressed under this state, the adjustment can be interrupted. After completion of the adjustment, the COMPLETE display is shown. REGIST (DFD) Resist sensor TIMING (DTD) Timing sensor REVERSE (RDD) Paper exit/reverse sensor



	Note	

60

60 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation (read/write) of ICU (DRAM). (SIMM MEMORY/ONBOARD MEMORY)
	Section	ICU
	Item	Operation
	Operation/ Procedure	1. Press the [EXECUTE] key to check the read/write operations. 2. After completion of the read/write operation check, the check result is displayed with OK or NG.

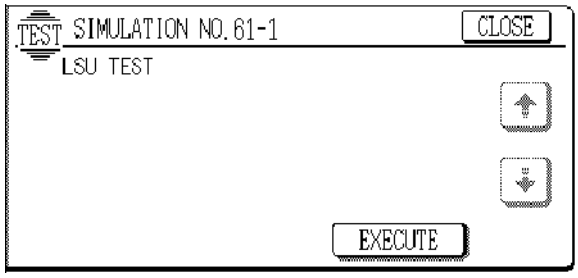


	Note	

61

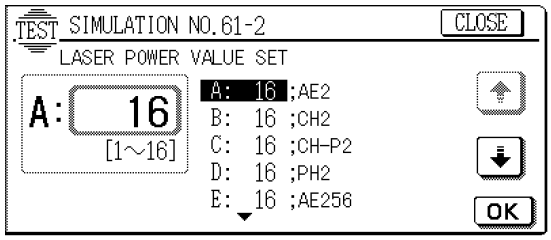
61 - 1

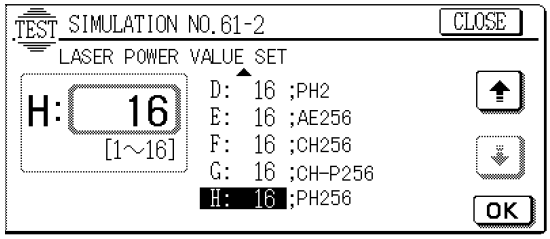
Purpose	Operation test/check
Function (Purpose)	Used to test the operation of the scanner (exposure) unit.
Section	Laser (Exposure)
Item	Operation
Operation/ Procedure	1. Press the [EXECUTE] key The scanner unit is started. 2. After completion of check operation, the result is displayed with OK or NG. Used to check whether the sync signal (HSYNC/) is normally outputted or not by operating the laser (exposure) unit (laser motor rotation, laser emission).
Note	

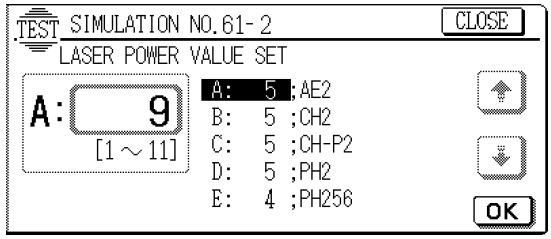


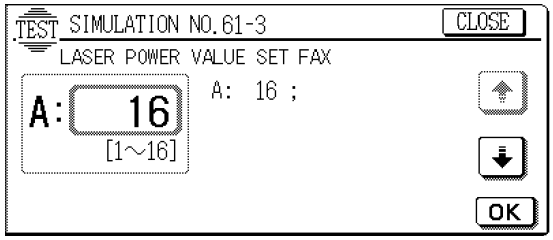
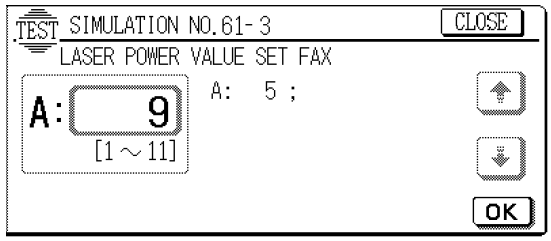
61 - 2

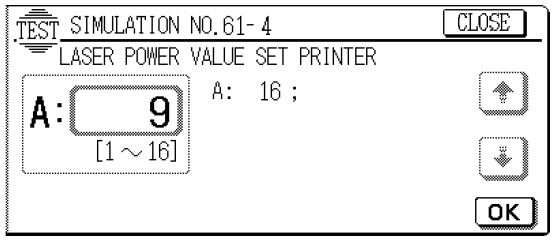
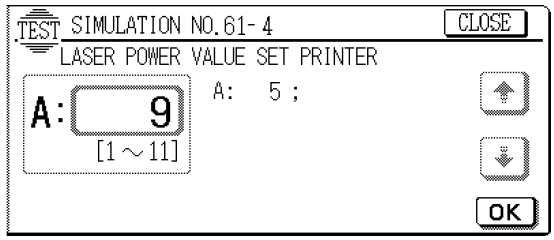
Purpose	Adjustment
Function (Purpose)	Used to adjust the scanner (exposure) laser power (absolute value) in the copy mode.
Section	Laser (Exposure)
Item	Operation
Operation/ Procedure	(AR-230/280/285/330/335 series) All must be set to "16." (AR-4XX series) Set all to "5" except for PH256.
Note	





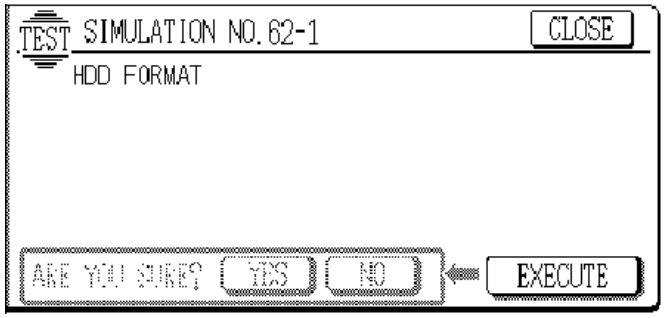


61 - 3	Purpose	Adjustment
	Function (Purpose)	Used to adjust the scanner (exposure) laser power (absolute value) in the FAX (auto) mode. (FAX model only)
	Section	Laser (Exposure)
	Item	Operation
	Operation/ Procedure	(AR-230/280/285/330/335 series) Set all the values to the default value 16.  (AR-4XX series) All must be set to "5." 
	Note	

61 - 4	Purpose	Adjustment
	Function (Purpose)	Used to adjust the scanner (exposure) laser power (absolute value) in the printer mode. (For Photoconductor type B)
	Section	Laser (Exposure)
	Item	Operation
	Operation/ Procedure	(AR-230/280/285/330/335 series) Set all the values to the default value 16.  (AR-4XX series) Set all the values to the default value 5. 
	Note	

62

62 - 1	Purpose	Setting/Data clear
	Function (Purpose)	Used to format the hard disk. (Target models: AR-S330/280/285/335)(Models with the hard disk installed only)
	Section	Memory
	Item	Others
	Operation/ Procedure	1. Press the [EXECUTE] key. The display for reconfirmation to clear or not is shown. 2. Select YES/NO to format. YES: Formatting is performed. NO: Formatting is not performed. 3. Press YES. Formatting is performed. After completion, the result is shown with OK or NG. This procedure is necessary when the hard disk is replaced. If NG is displayed, it means a hard disk trouble.



	Note	

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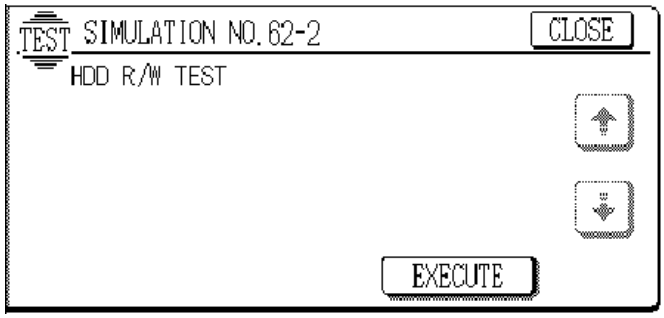
62 - 2	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation (read/write) of the hard disk. (Target models: AR-S330/280/285/335)(Models with the hard disk installed only.) (Partial check)
	Section	Memory
	Item	Operation
	Operation/ Procedure	1. Press the [EXECUTE] key to start the read/write operation check. 2. After completion of the read/write operation check, the result is displayed with OK or NG. If NG is displayed, it means a hard disk trouble.



	Note	

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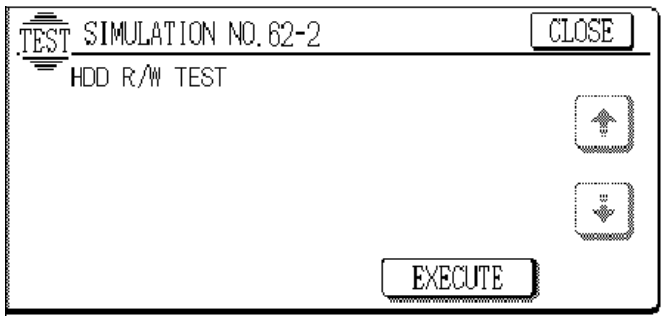
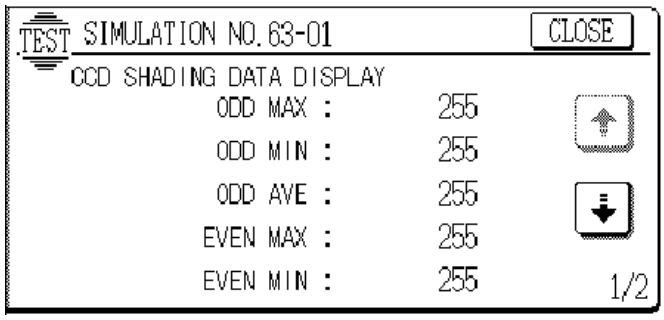
62 - 3	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation (read/write) of the hard disk. (Target models: AR-S330/280/285/335) (Only the models with a hard disk) (All area check)
	Section	Memory
	Item	Operation
	Operation/ Procedure	1. Press the [EXECUTE] key to start the read/write operation check. 2. After completion of the read/write operation check, the result is displayed with OK or NG. If NG is displayed, it means a hard disk trouble.

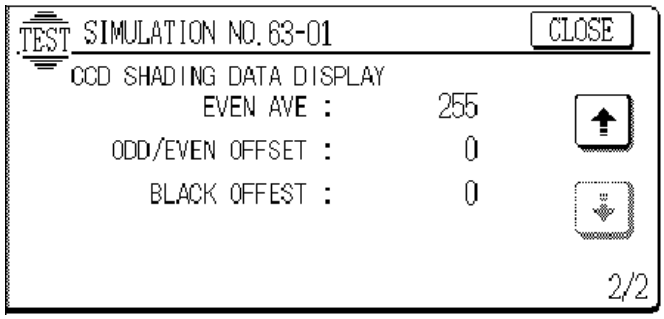


	Note	

63

63 - 1	Purpose	Operation data output/Check (Display/Print)
	Function (Purpose)	Used to check the result of shading correction. (The shading correctiondata are displayed.)
	Section	Scanner (Exposure)
	Item	Operation
	Operation/ Procedure	Used to display the result of latest shading correction. The displayed page can be shifted with [↑], [↓] keys. ODD/EVEN OFFSET: Difference between the average detection level and the max. detection level BLACK OFFSET: Dark component (average level)





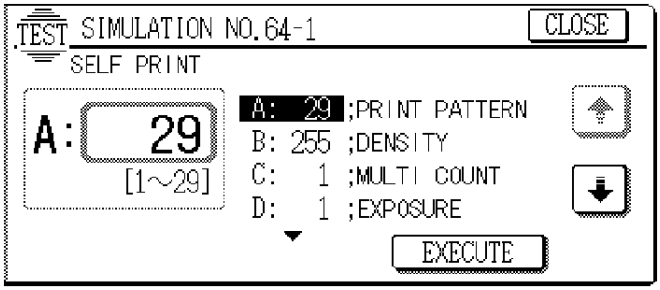
	Note	

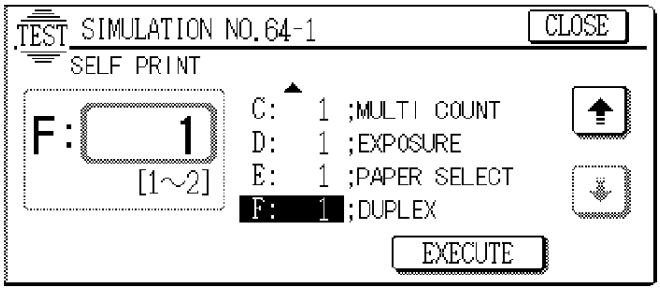
64

64 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the printer function (auto print operation). (Print pattern, paper feed mode, print mode, the number of sheets, and the density can be set to an arbitrary value.)
	Section	Printer
	Item	Operation
	Operation/ Procedure	1. Select the item with [↑], [↓] keys. 2. Enter the print conditions with the 10-key. (There are 29 kinds of print patterns.) 3. Press the [EXECUTE] Key. Printing is executed under the condition set with procedure 2.

A:	Self print pattern	--------	1.ALL 1BY1(V)
B:	Density level		2.ALL 1BY1(H)
C:	Self print number setting		3.ALL 1BY2(V)
D:	Picture quality mode		4.ALL 1BY2(H)
	1: Auto		5.ALL 1BY3(V)
	2: Character		6.ALL 1BY3(H)
	3: Character/Photo		7.ALL 1BY4(V)
	4: Photo		8.ALL 1BY4(H)
E:	Paper feed source select		9.ALL 1BY5(V)
	1: Manual		10.ALL 1BY5(H)
	2: Upper cassette		11.ALL 2BY2(V)
	3: Lower cassette		12.ALL 2BY2(H)
	4: Desk top cassette		13.ALL 2BY3(V)
	5: Desk middle cassette		14.ALL 2BY3(H)
	6: Desk bottom cassette		15.BLACK *1
	7: LCC		16.GLAY SCALE 120/4(V) *3
F:	Duplex print select		17.GLAY SCALE 120/4(H) *2
	1: Single		18.GLAY SCALE 250/8(V) *2
	2: Duplex		19.GLAY SCALE 250/8(H) *2
			20.GLAY SCALE 250/2(V) *1
			21.GLAY SCALE 250/2(H) *3
			22.SQUARE
			23.SLANT 45
			24.SLANT 26.6
			25.SLANT 63.4
			26.ID/BG
			27.DOT PATTERN 12.5%
			28.DOT PATTERN 25%
			29.DOT PATTERN 50%
			30.SMOOTHING CHECK PATTERN

*1: In AR-2X1/3X1/4XX/250/XX6 series, only Japan specification model allows density change.
*2: In AR-2X1/3X1/4XX/250/XX6 series, only Japan specification model works.
*3: AR-2X1/3X1/4XX/250/XX6 series cannot work.



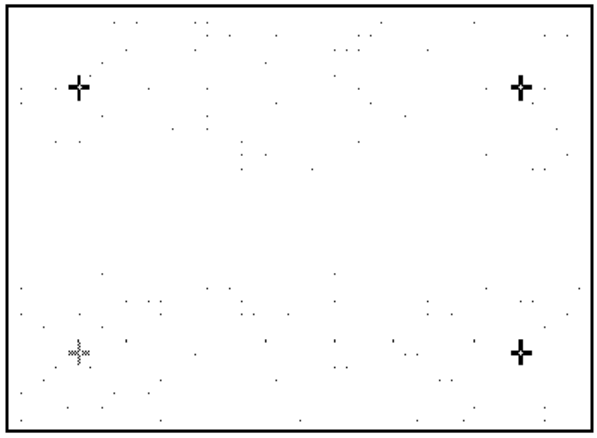


Note

65

65 - 1

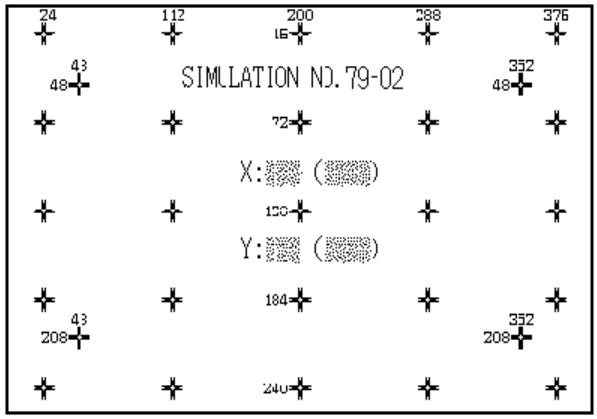
Purpose	Adjustment
Function (Purpose)	Used to adjust the touch panel (LCD display) detecting position.
Section	Operation (Display/Operation key)
Item	
Operation/ Procedure	Touch the four cross marks. The coordinates at the pressed point are set. When the coordinates are properly set, the display turns to gray and returns to the simulation sub code entry screen. In case of an abnormality, it returns to the input display.



Note	

65 - 2

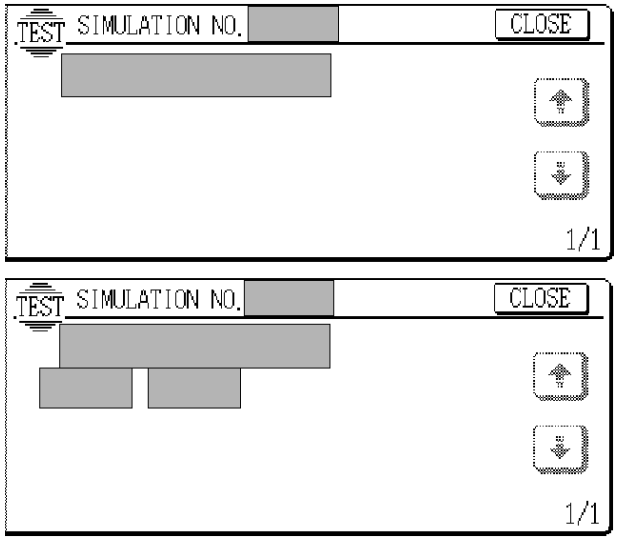
Purpose	Operation data output/Check (Display/Print)
Function (Purpose)	Used to check the result of the touch panel (LCD display) detecting position adjustment. (The coordinates are displayed.)
Section	Operation (Display/Operation key)
Item	
Operation/ Procedure	When the touch panel is pressed, the AD value in each of X and Y directions at that point and the coordinate values are displayed in ( ) as well as the coordinate values of each point. It is based on the coordinates set with SIM 65-1.



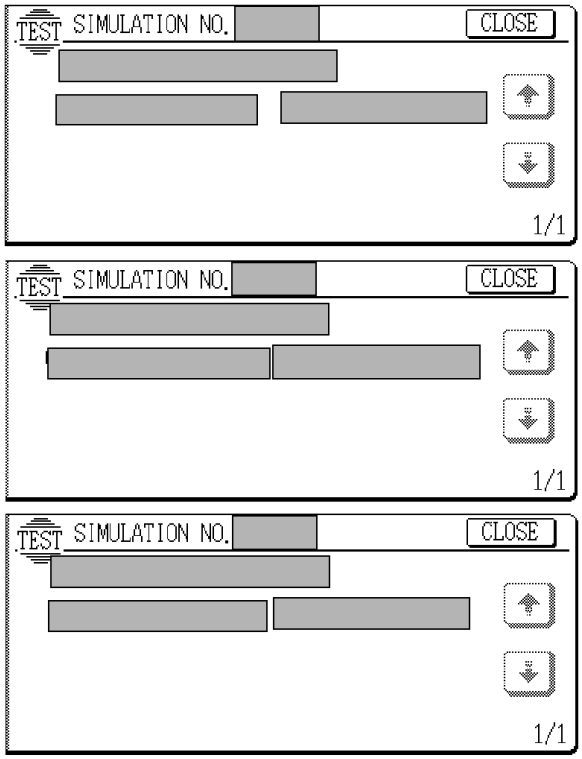
Note	

66

66 - 35	Purpose	Operation test/check
	Function (Purpose)	Used to check the communication test between the FAX main PWB and the sub PWB. (FAX model only)
	Section	FAX
	Item	Operation Interface/Communication
	Operation/ Procedure	1. When the sub code "35" of the simulation is entered, the display shows "FAX-SUB I/F check" menu as shown in the left. 2. Fixed data send/receive from the FAX main PWB and the sub PWB is checked to judge that the received data are identical. 3. When sending from the FAX main PWB to the sub PWB is performed successfully, "M-S:OK" is displayed, If failed, "M-S:NG" is displayed. When sending from the FAX sub PWB to the main PWB is performed successfully, "S-M:OK" is displayed, If failed, "S-M:NG" is displayed.
	Note	



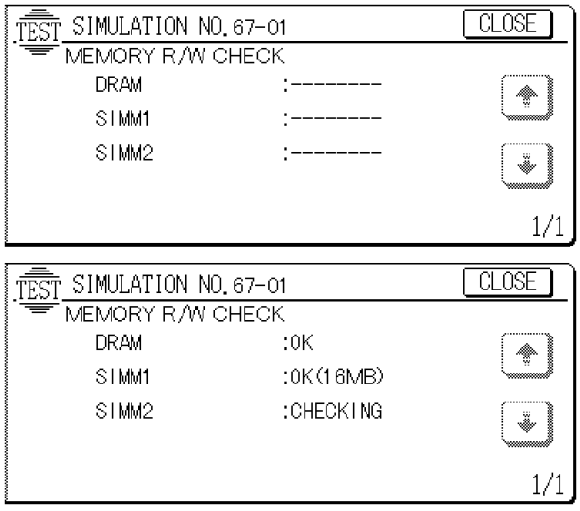
66 - 36	Purpose	Operation test/check
	Function (Purpose)	Used to check the FAX sub PWB memory operation (read/write). (When replacing the PWB with a new one, this check must be performed.)(FAX model only)
	Section	FAX
	Item	Data
	Operation/ Procedure	1. The name of memory to be checked is displayed at the hatched section, and "Not checked yet" is displayed at the value section. 2. For the memory the check of which has been started, "Not checked yet" is changed to "Check started." 3. When check is completed, the memory check status is displayed with "OK" or "NG."



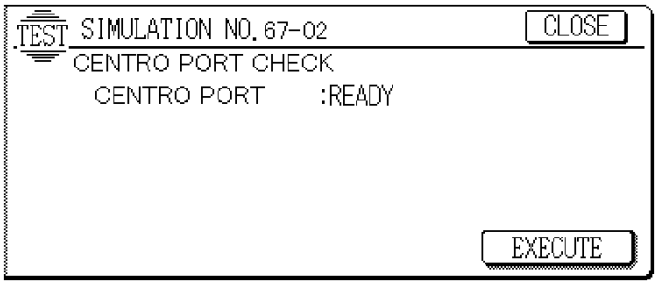
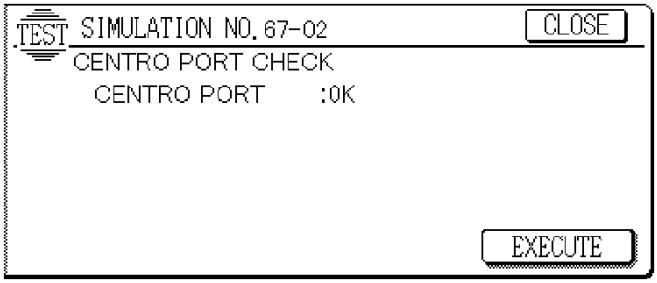
Note	

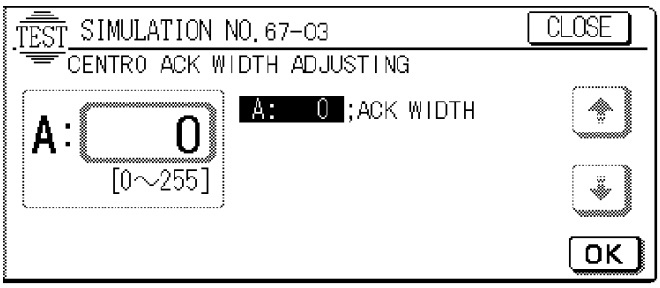
67

67 - 1		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the printer PWB memory operation (read/write). (When replacing the PWB with a new one, this check must be performed.)
	Section	Printer
	Item	Data
	Operation/ Procedure	1. When SIM 67-1 menu is displayed, the operation check of all memory (DRAM, SIMM1, SIMM2) of the printer section is started. 2. For the RAM the operation check of which is started, "--------" display is changed to "CHECKING." When checking is completed, the check result is displayed with "OK" or "NG." When SIMM is inserted, the memory capacity is also displayed as "OK(16MB)."



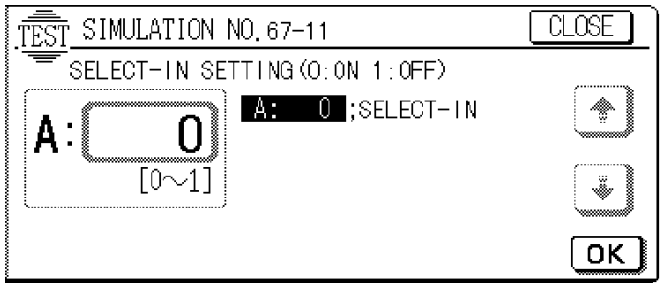
Note	

67 - 2	Purpose	Operation test/check
	Function (Purpose)	Used to check the printer parallel I/F operation. (This simulation is used only for production, and a special tool is required. Not available in the market.)
	Section	Printer
	Item	Operation　　Interface/Communication
	Operation/ Procedure	 
	Note	

67 - 3	Purpose	Adjustment
	Function (Purpose)	Used to adjust the printer parallel I/F ACk signal width.
	Section	Printer
	Item	Operation　　Interface/Communication
	Operation/ Procedure	1. Enter the ACK signal width of parallel I/F with the 10-key. ∗ Set range: 0 ~ 255 (*50ns) Default: 10 2. When the [OK] key is pressed, the value set in procedure 1) is set. 
	Note	

67 - 11	Purpose	Adjustment
	Function (Purpose)	Used to set YES/NO of the printer parallel I/F SELECT IN signal.
	Section	Printer
	Item	Operation　　Interface/Communication

Operation/ Procedure	1. Set ON/OFF of the SELECT IN signal ON/OFF of parallel I/F with the 10-key. ∗ Set range: 0 ~ 1 (0: ON, 1: OFF) Default: 0/LI 2. When the [ON] key is pressed, the set value set in procedure 1) is set.



Note	

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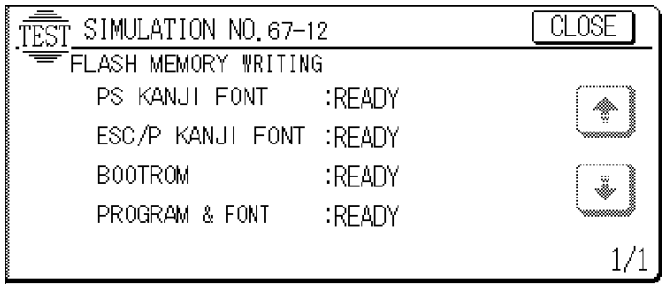
67 - 12	Purpose	Data transfer/Copy
	Function (Purpose)	Used to write data into the printer flash memory.
	Section	Printer
	Item	Picture quality
	Operation/ Procedure	1. With the power OFF, change the printer PWB jumper connection to allow writing into the flash memory. 2. Enter SIM 67-12 mode, and wait until "--------" display is changed to "READY." 3. Send data from PC. 1) The display of the item to be rewritten is changed in the sequence of "RECEIVE," "SUM," "ERASE," "BLANK," and "WRITE" and rewriting is performed. 2) The result of rewriting is displayed with "OK" or "NG." (Note) In case of an error, "ERROR!!! Exit sub Menu" is displayed. In that case, press the interrupt key to exit from SIM 67-12 mode. If the machine still waits for date from PC, stop data sending. 4. Change the jumper connection of the printer PWB again to disable writing to the flash memory.



Note	

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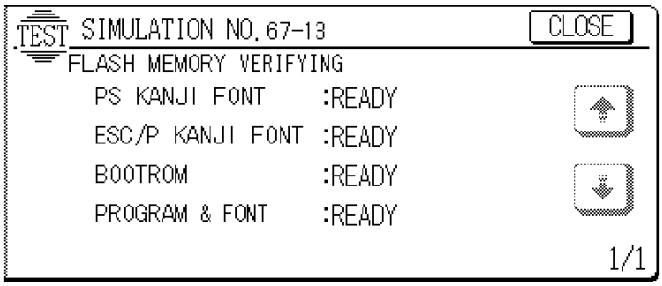
67 - 13	Purpose	Data transfer/Copy
	Function (Purpose)	Used to check the printer flash memory data.
	Section	Printer
	Item	Data Program
	Operation/ Procedure	1. Enter SIM 67-13 mode and wait until "--------" display is changed to "READY." 2. Send data from PC. 1) The display of the item to be rewritten is changed in the sequence of "RECEIVE," "SUM," "VERIFY" and checking is performed. 2) The result of checking is displayed with "OK" or "NG." (Note) In case of an error, "ERROR!!! Exit sub Menu" is displayed. In that case, press the interrupt key to exit from SIM 67-13 mode. If the machine still waits for date from PC, stop data sending.



Note	

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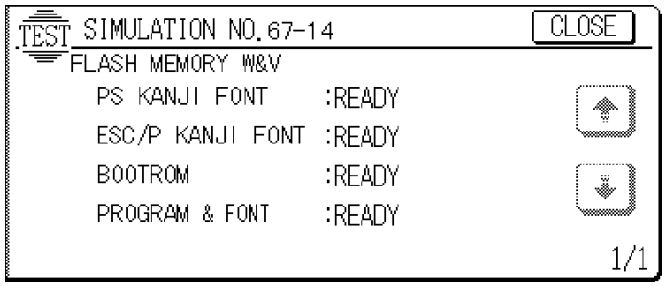
67 - 14		
	Purpose	Data transfer/Copy
	Function (Purpose)	Used to check the printer flash memory data writing and its result.
	Section	Printer
	Item	Data Program
	Operation/ Procedure	1. With the power OFF, change the printer PWB jumper connection to allow writing into the flash memory. 2. Enter SIM 67-14 mode, and wait until "--------" display is changed to "READY." 3. Send data from PC. 1) The display of the item to be rewritten is changed in the sequence of "RECEIVE," "SUM," "ERASE," "BLANK," and "WRITE" and rewriting is performed. 2) The result of rewriting is displayed with "OK" or "NG." (Note) In case of an error, "ERROR!!! Exit sub Menu" is displayed. In that case, press the interrupt key to exit from SIM 67-14 mode. If the machine still waits for date from PC, stop data sending. 4. Change the jumper connection of the printer PWB again to disable writing to the flash memory.



Note	

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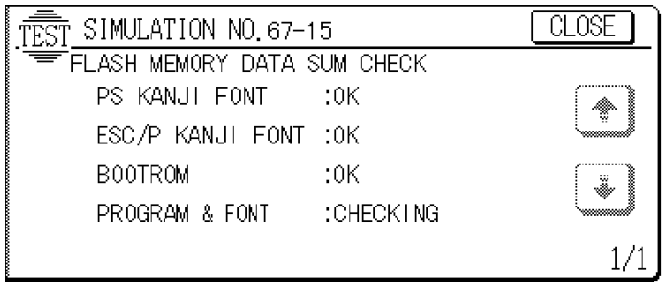
67 - 15		
	Purpose	Operation test/check
	Function (Purpose)	Used to check the sum of the printer flash memory.
	Section	Printer
	Item	Data Program
	Operation/ Procedure	1. When the simulation is executed, flash memory sum check is started. 2. For all the items to be checked, "--------" is changed to "CHECKING." When checking is completed, the sum check result is displayed with "OK" or "NG." (In case of "NG" with PS KANJI font, the sum number is also displayed as "SUM2 NG" because there are four sums. ∗ Since no KANJI font is available for ARPB2 (for EX), "PS KANJI FONT" and "ESC/P KANJI FONT" are terminated with "--------."



Note	

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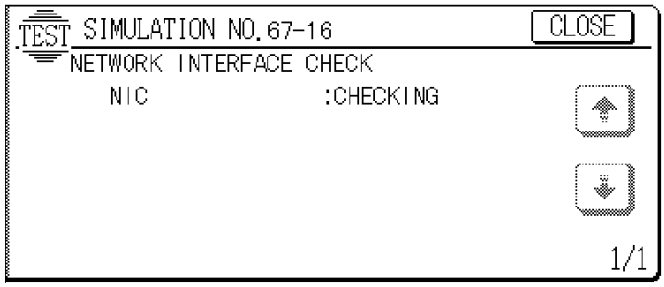
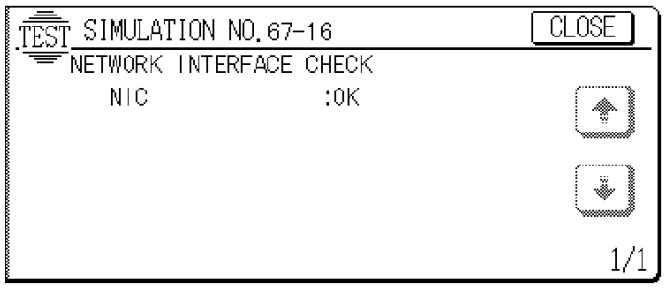
67 - 16	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of the network card.
	Section	Printer
	Item	Operation Interface/Communication
	Operation/ Procedure	1. When SIM 67-16 menu is displayed, the operation check of the network card of the printer section is started. 2. When checking is completed, the result is displayed with "OK" or "NG."





Note	

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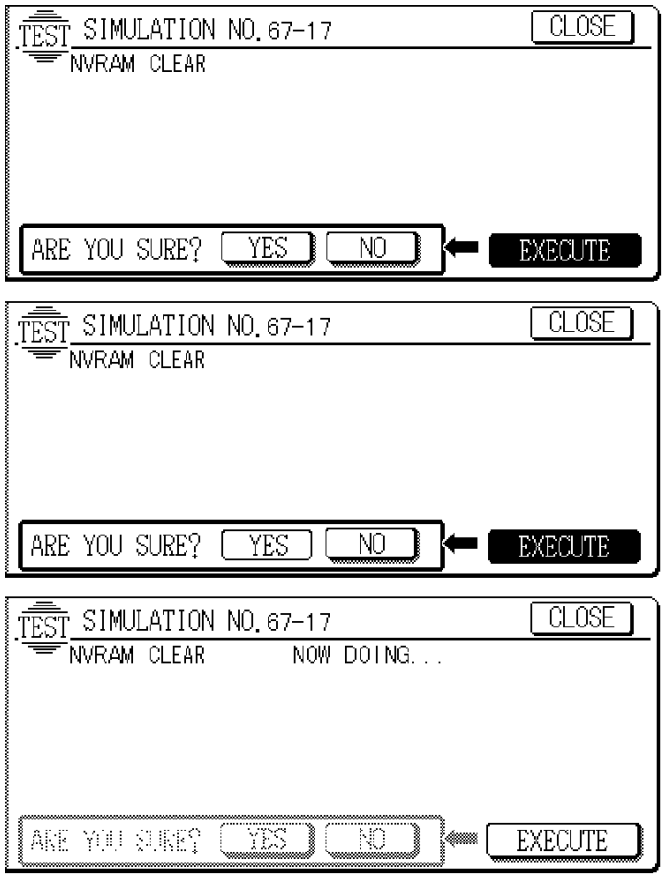
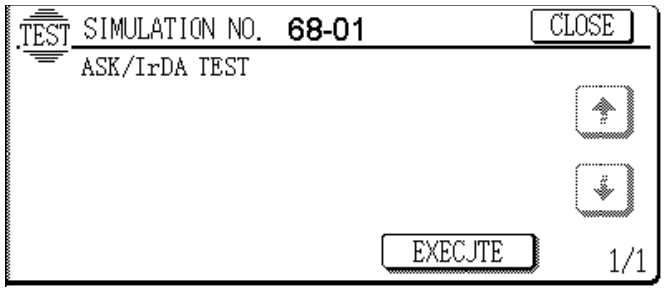
67 - 17	Purpose	Data clear
	Function (Purpose)	Used to clear data in the NVRAM of the printer PWB (set to the default). (Printer set data)
	Section	Printer
	Item	Data
	Operation/ Procedure	1. To clear set data of the printer section, press the [EXECUTE] key. 2. Confirmation is displayed whether to clear NVRAM or not. YES: Clear NO: Not clear 3. During execution of clearing NVRAM, "NOW DOING..." is displayed.



Note	

68

68 - 1	Purpose	Operation test/check
	Function (Purpose)	Used to check the operation of infrared communication I/F (Zaurus link) and the related circuit. (Target models: AR-F230/S280/F280S/F280R/S330)(Japan models only)
	Section	Interface
	Item	Operation
	Operation/ Procedure	Press the [EXECUTE] key. The following checks are performed sequentially. 1. ASK/IrDA modulation LSI oscillation test 2. ASK modulation /IrDA modulation select test 3. ASK9600bps send/receive test 4. ASK19200bps send/receive test 5. IrDA9600bps send/receive test 6. IrDA115Kbps send/receive test After completion of checking, if there is no abnormality, OK is displayed. If there is any abnormality, NG is displayed.



Note	Japan only

[9] Maintenance

1. Maintenance table (AR-405)

× Check (Check, clean, replace or adjust according to necessity.)
○ Cleaning ▲ Change △ Adjustment ☆ Lubrication ☐ Installing position change

Unit/Option name	Part name		Call	90K	180K	270K	360K	Remark
Drum section	OPC Drum	Drum		×	▲	×	▲	To be factory attached
	Drum	Cleaner Blade		▲	▲	▲	▲	
		Drum mark sensor		○	○	○	○	
		Drum destiny sensor		○	○	○	○	
		Drum separation pawl		▲☐	▲	▲☐	▲	Change the installing position at every 90 K
		Toner reception seal		▲	▲	▲	▲	
		Toner reception bearing blade		○	○	○	○	
		Cleaner side seal F/R	×	×	×	×	×	
	TC / AC	Charger wire	(○) ×	▲	▲	▲	▲	
		Charger case	○	○	○	○	○	
	Discharge Lamp	Discharge Lamp		○	○	○	○	
	Main charger	Charging plate (Saw blade)	○	▲	▲	▲	▲	
		Screen grid	(○) ×	▲	▲	▲	▲	
Developing section	Developer Box	DV seal		×	▲	×	▲	
		DSD collar		○	○	○	○	
		DV side seal F		×	▲	×	▲	
		DV side seal R		×	▲	×	▲	
	Developer	Developer		▲	▲	▲	▲	To be charged at the time of installation
	Toner cartridge	Toner cartridge						To be charged at the time of installation / To be replaced by user about 22 K
	Waste toner bottle	Waste toner bottle	×					To be replaced by user about every 40 K
Optical section	Mirror base unit	Mirror	○	○	○	○	○	
		Pulley		×	×	×	×	
	Copy lamp unit	Refractor	○	○	○	○	○	
		Mirror	○	○	○	○	○	
	Rail	Rail		☆	☆	☆	☆	
	Glass	Table glass	○	○	○	○	○	
		Dust proof glass	○	○	○	○	○	
		White reference glass	○	○	○	○	○	
	Scanner	Lens	○	○	○	○	○	
		Sensors	○	○	○	○	○	
		Drive belt		×	×	×	×	
		Drive wire		×	×	×	×	
	OC	OC	○	○	○	○	○	
Paper feed section	Manual feed tray	Rollers	(○) ×	×	×	×	×	[Note 1]
		Torque limitor	×	×	×	×	×	[Note 1]
	Paper tray	Rollers	(○) ×	×	×	×	×	[Note 1]
		Brake spring	×	☆	☆	☆	☆	
		Torque limitor	×	×	○ ☆	×	○ ☆	
Transport section	Transport	Transport rollers	(○) ×	○	○	○	○	
		Resist roller	(○) ×	○	○	○	○	
	Suction	Suction belt	(○) ×	○	○	○	○	
Fusing section	Fusing unit 1	Upper heat roller	(○) ×	(○) ×	▲	(○) ×	▲	
		Lower heat roller	(○) ×	(○) ×	▲	(○) ×	▲	
		Upper separation pawl	(○) ×	▲	▲	▲	▲	
		Lower separation pawl	(○) ×	▲	▲	▲	▲	
		Insulation bush		×	×	×	×	
	Fusing unit 2	Thermistor		×	×	×	×	
		Upper heat roller gear		☆	▲	☆	▲	
		Gears		☆	☆	☆	☆	
Paper exit section	1 Tray paper exit unit	Paper exit follower roller	×	☆	☆	☆	☆	
		Transport rollers	(○) ×	○	○	○	○	
			(○) ×	○	○	○	○	
Drive section		Gears	☆	☆	☆	☆	☆	(Specified positions)
		Belts						
Filters				▲	▲	▲	▲	
TC			×	×	×	×	×	
Print Quality			×	×	×	×	×	

× Check (Check, clean, replace or adjust according to necessity.)
○ Cleaning ▲ Change △ Adjustment ☆ Lubrication ☐ Installing position change

Unit/Option name	Part name		Call	90K	180K	270K	360K	Remark
ADU	Transport section	Transport rollers	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	
	Drive section	Gears	☆	☆	☆	☆	☆	(Specified positions)
		Belts				×		
Desk	Paper feed separation section	Paper feed rollers	(○) ×	×	×	×	×	[Note 3]
		Brake spring	×	☆	☆	☆	☆	
		Torque limiter	×	×	○ ☆	×	○ ☆	
	Transport section	Transport rollers	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	
	Drive section	Gears	☆	☆	☆	☆	☆	(Specified positions)
		Belts				×		
	Others	Sensors		×	×	×	×	
LCC	Paper feed separation section	Paper feed rollers	(○) ×	×	×	×	×	[Note 3]
		Brake spring	×	☆	☆	☆	☆	
		Torque limiter	×	×	○ ☆	×	○ ☆	
	Transport section	Transport rollers	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	
	Drive section	Gears	☆	☆	☆	☆	☆	(Specified positions)
		Belts				×		
	Others	Sensors		×	×	×	×	
Finisher (AR-FN1) (AR-FN1N)	Transport section	Transport rollers	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	
	Drive section	Gears	☆	☆	☆	☆	☆	(Specified positions)
		Belts				×		
	Others	Sensors		×	×	×	×	
	Staple unit							Unit replacement at every 100K staple
	Staple cartridge							User replacement at every 5K staple.
Finisher [AR-FN2]	Transport section	Transport rollers	○	○	○	○	○	
		Transport paper guides	○	○	○	○	○	
		Decurler roller						Maintenance timing under consideration.
	Drive section	Belts	×	×	×	×	×	Adjust every 480K.
		Torgue limiter		☆	☆	☆	☆	Replace every 480K.
	Other	Sensors	×	×	×	×	×	Clean the reverse sensor every 80K.
		Discharge brush		×	×	×	×	Replace every 480K.
	Staple unit							Replace the unit every 100K staple.
	Staple cartridge							Replace every 5K (By user)
RADF	Paper feed section		○	○	○	○	○	
			(○) ×	▲	▲	▲	▲	[Note 2]
			(○) ×	▲	▲	▲	▲	[Note 2]
			○	○	○	○	○	
	Transport section		○	○	▲	○	▲	For cleaning, wipe with alcohol.
	Paper exit section		○	○	○	○	○	
			○	○	○	○	○	
	Others			○	○	○	○	For cleaning, blow air.
2-Tray paper exit unit (AR-TR1)	Transport rollers		○	○	○	○	○	
	Paper exit follower roller (inside)		☆	☆	☆	☆	☆	

[Note 1] Rough guide of replacement intervals

The rollers should be replaced, using the values indicated by the counter of each paper feed port as a rough guide.

- 500-sheets cassette: 80 K or 2 years (this also applies to built-in 500-sheets container.)
- Manual feed tray: 40 K or 2 years
- Torque limitor of Manual feed tray: 120 K or 2 years

[Note 2] As specified above or 2 years

[Note 3] Rough guide of replacement intervals

The rollers should be replaced, using the values indicated by the counter of each paper feed port as a rough guide.

- Paper feed rollers: 80 K or 2 years

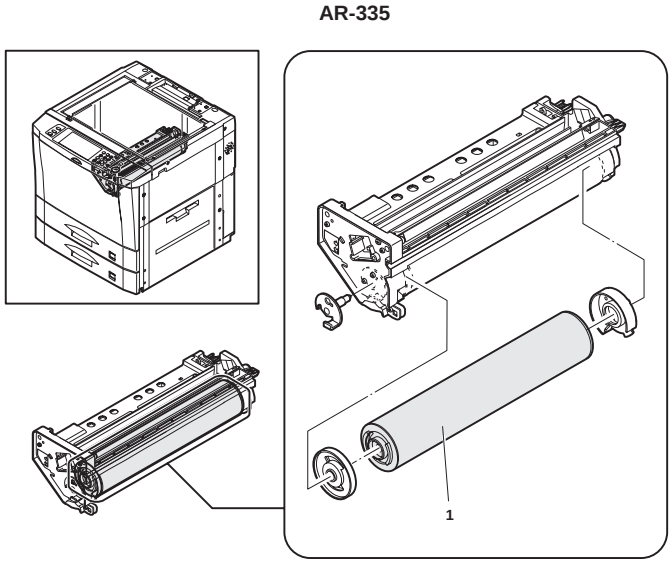
2. Counter clear

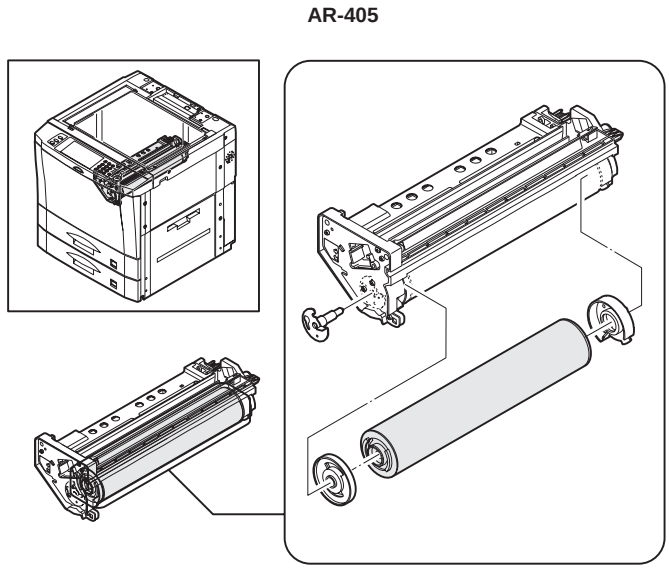
Maintenance cycle setting	SIM21-01	
Maintenance counter clear	SIM24-04	At drum replacement
Developing counter clear	SIM24-05	At developer replacement
OPC drum membrane decrease correction counter clear	SIM24-07	At drum replacement
Jam/trouble counter clear	SIM24-01	
Paper feed counter clear	SIM24-02	At maintenance
DF/Scan/Stapler counter clear	SIM24-03	At maintenance
Zaurus print clear	SIM24-08	
Printer, other counter clear	SIM24-09	

3. Details of maintenance

A. Drum and its peripheral

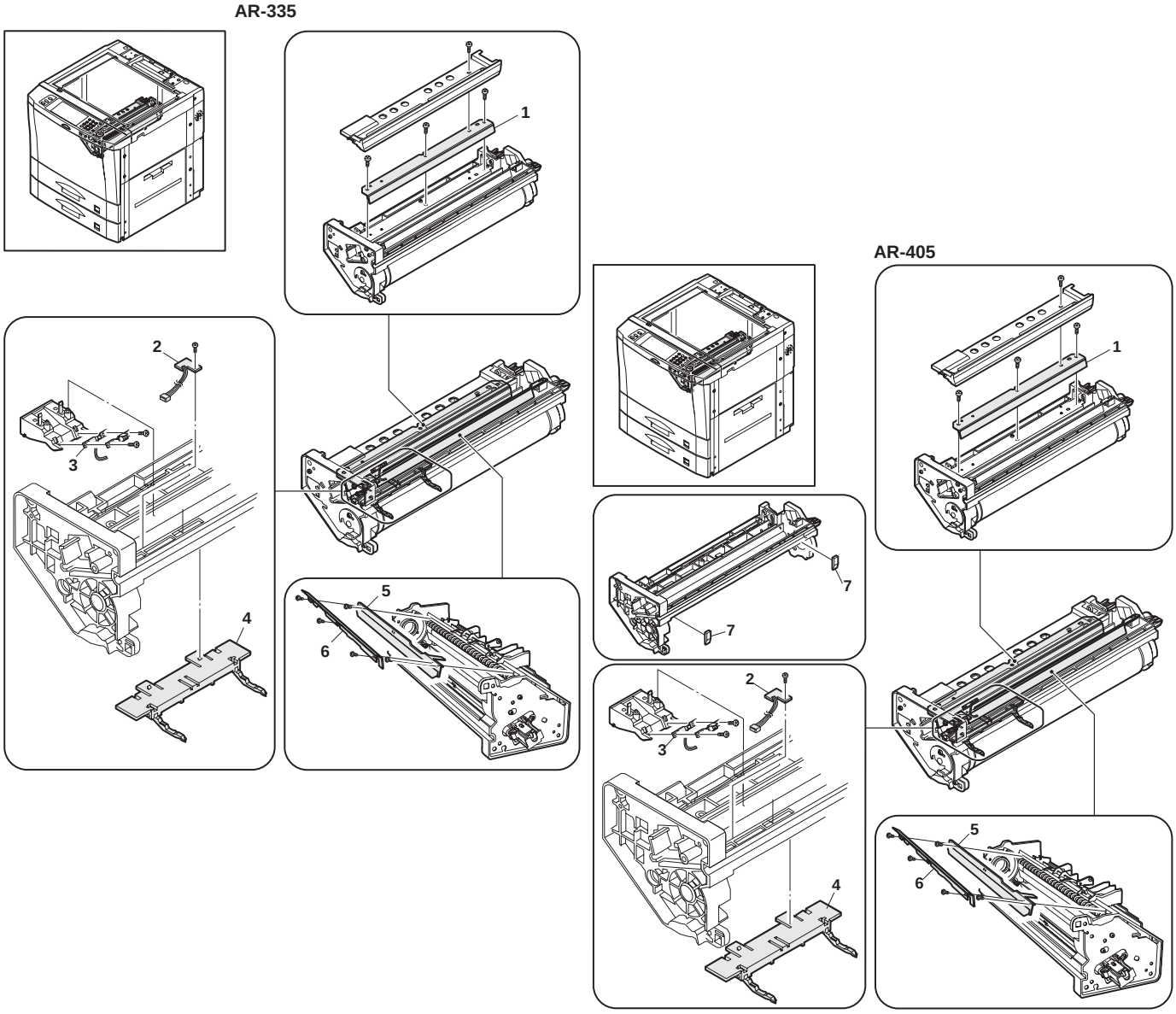
(1) OPC drum





No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Drum	Check	80 K	90 K		
		Replace	160 K	180 K		Execute SIM 24-7 after replacement.

(2) OPC drum peripheral

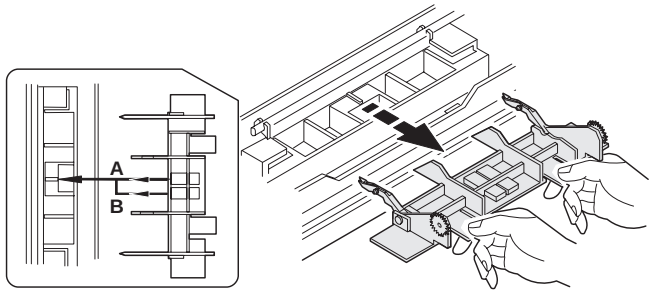


No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Cleaner blade	Replace	80 K	90 K		
2	Drum mark sensor	Clean	80 K	90 K		After cleaning, perform SIM 44-2.
3	Drum density sensor	Clean	80 K	90 K		After cleaning, perform SIM 44-2.
4	Drum separation pawl unit	Replace	80 K	90 K		Change the installing position at every 80 K
5	Toner reception seal	Replace	80 K	90 K		
6	Toner reception auxiliary blade	Clean	80 K	90 K		
7	Cleaner side seal F/R	Check	80K	90K	AR-405	

[Note] If the drum separation pawl is brought into contact with the drum at a same position for 160K life period, the drum may be worn down remarkably. In order to prevent against this, change the installing position of the separation pawl at 80K maintenance.

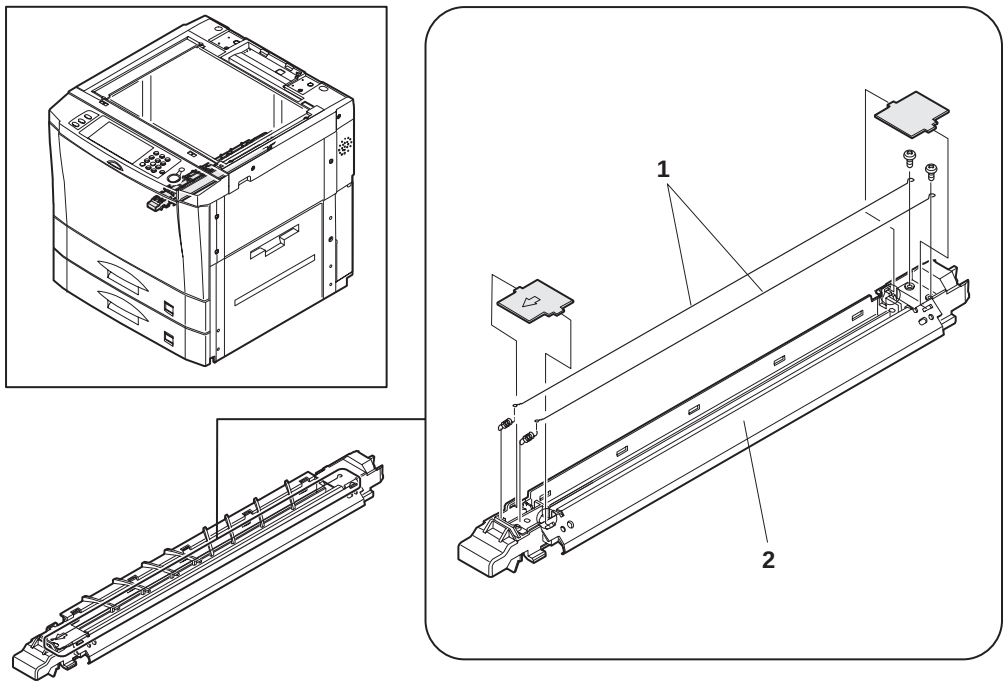
<Procedure>

When replacing the drum separation pawl unit, change the marking position (which is fit with the positioning rib) from A → B → A ... at every 80K to change the contact position between the separation pawl and the drum.



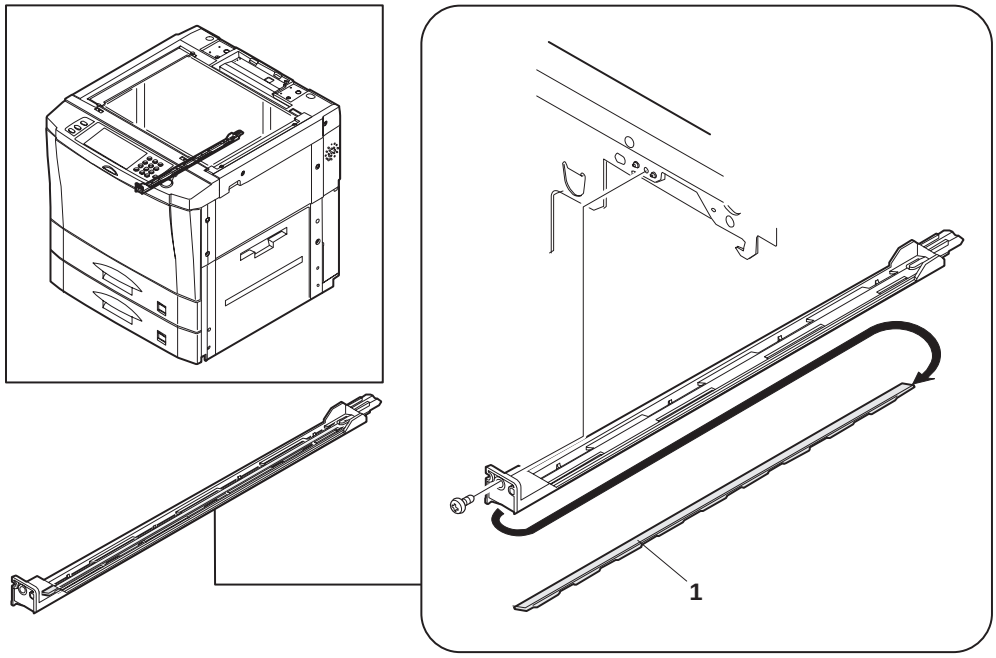
- In the AR-405, 160K is changed to 180K, and 80K to 90K.

(3) Transfer/separation charger



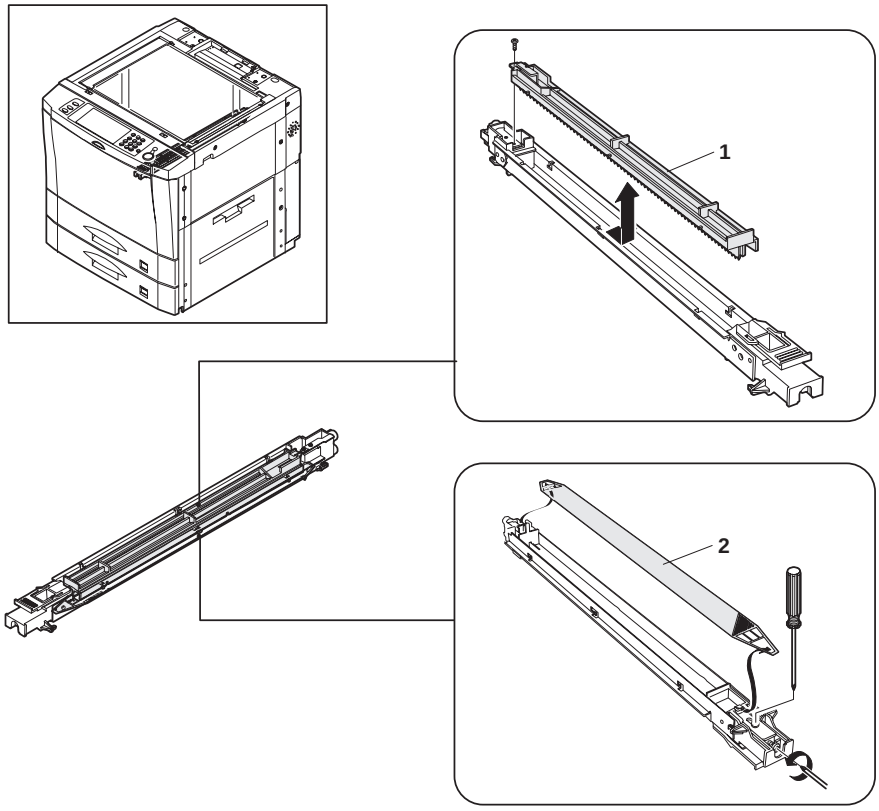
No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Charger wire	Replace	80 K	90 K		
2	Charger case	Clean	80 K	90 K		

(4) Discharge lamp



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Discharge lamp	Clean	80 K	90 K		

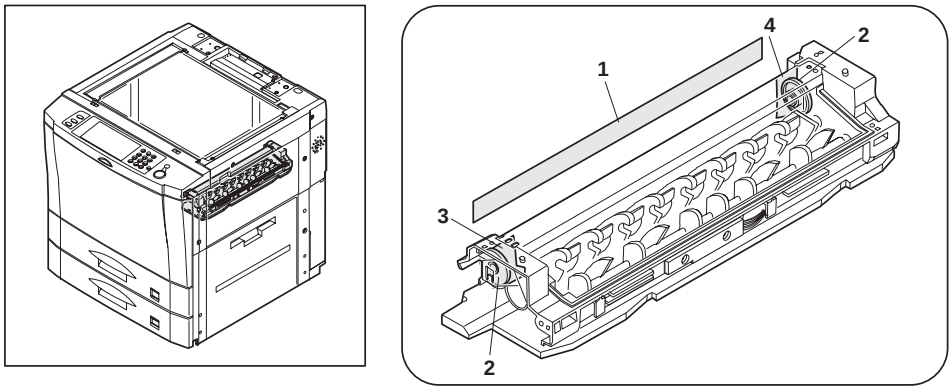
(5) Main charger



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Charging plate (Saw teeth)	Replace	80 K	90 K		
2	Screen grid	Replace	80 K	90 K		

B. Developing section

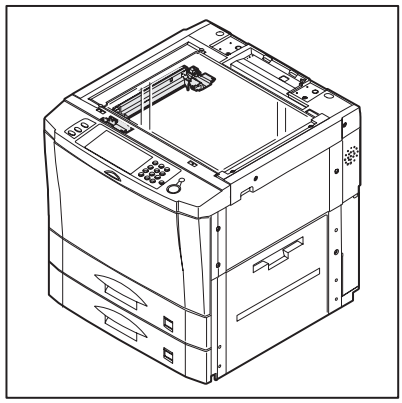
(1) Developing box

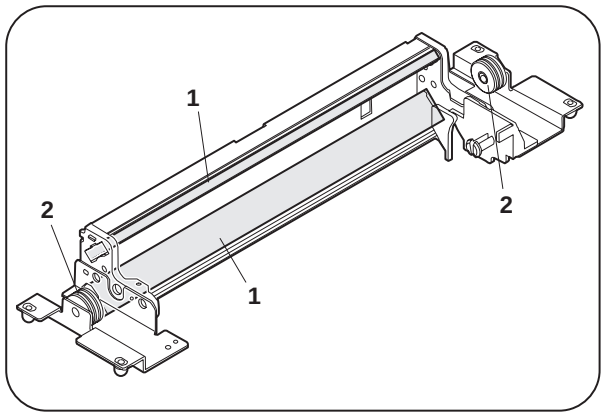


No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR405		
1	DV seal	Check	80 K	90 K		For attachment position, refer to DISASSEMBLY AND ASSEMBLY.
		Replace	160 K	180 K		For attachment position, refer to DISASSEMBLY AND ASSEMBLY.
2	DSD collar	Clean	80 K	90 K		For attachment position, refer to DISASSEMBLY AND ASSEMBLY.
3	DV side seal F	Check	80 K	90 K		
		Replace	160 K	180 K		For attachment position, refer to DISASSEMBLY AND ASSEMBLY.
4	DV side seal R	Check	80 K	90 K		
		Replace	160 K	180 K		For attachment position, refer to DISASSEMBLY AND ASSEMBLY.

C. Optical section

(1) Mirror base unit

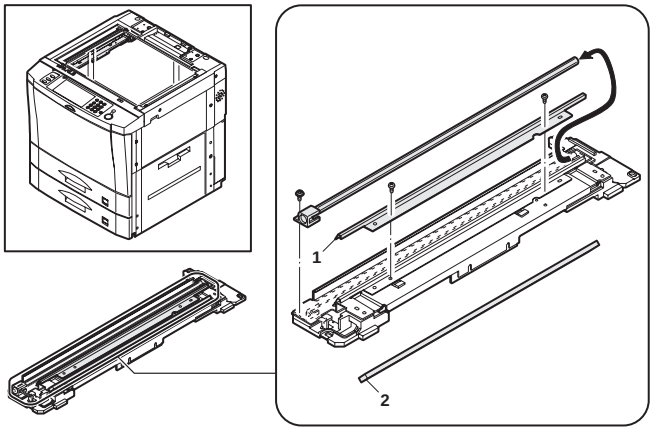




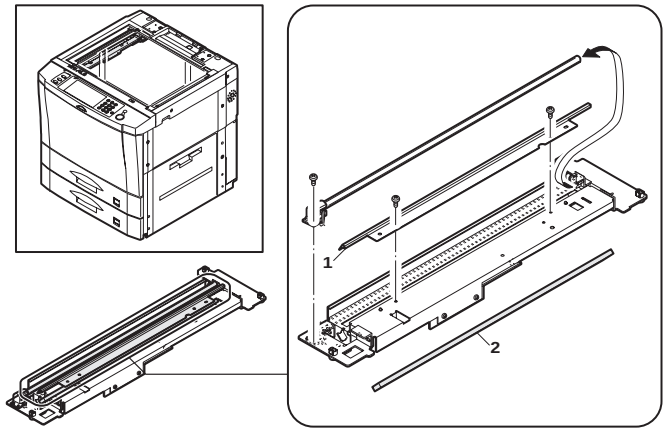
No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Mirror	Clean	80 K	90 K		
2	Pulley	Check	80 K	90 K		

(2) Copy lamp unit

AR-335

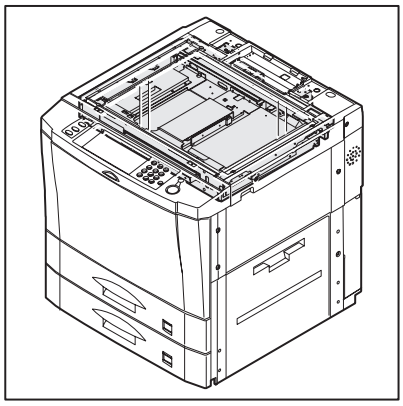


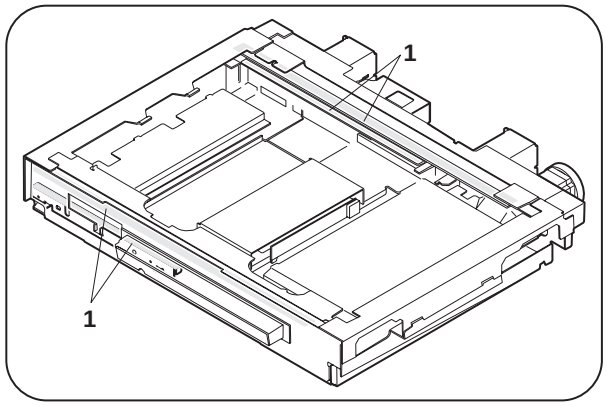
AR-405



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
2	Reflector	Clean	80 K	90 K		
3	Mirror	Clean	80 K	90 K		

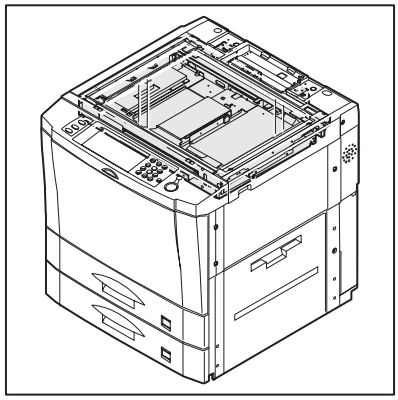
(3) Rails

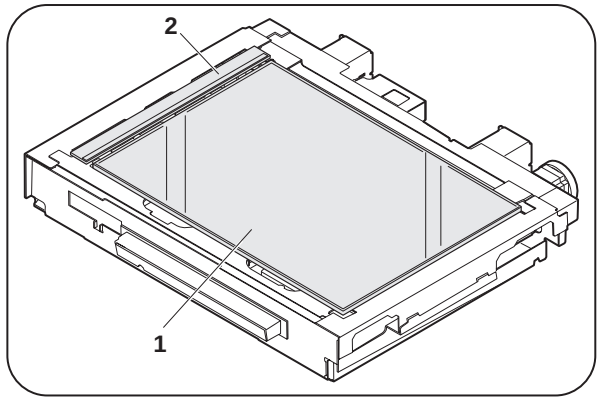




No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Rails	Lubricate	80 K	90 K		

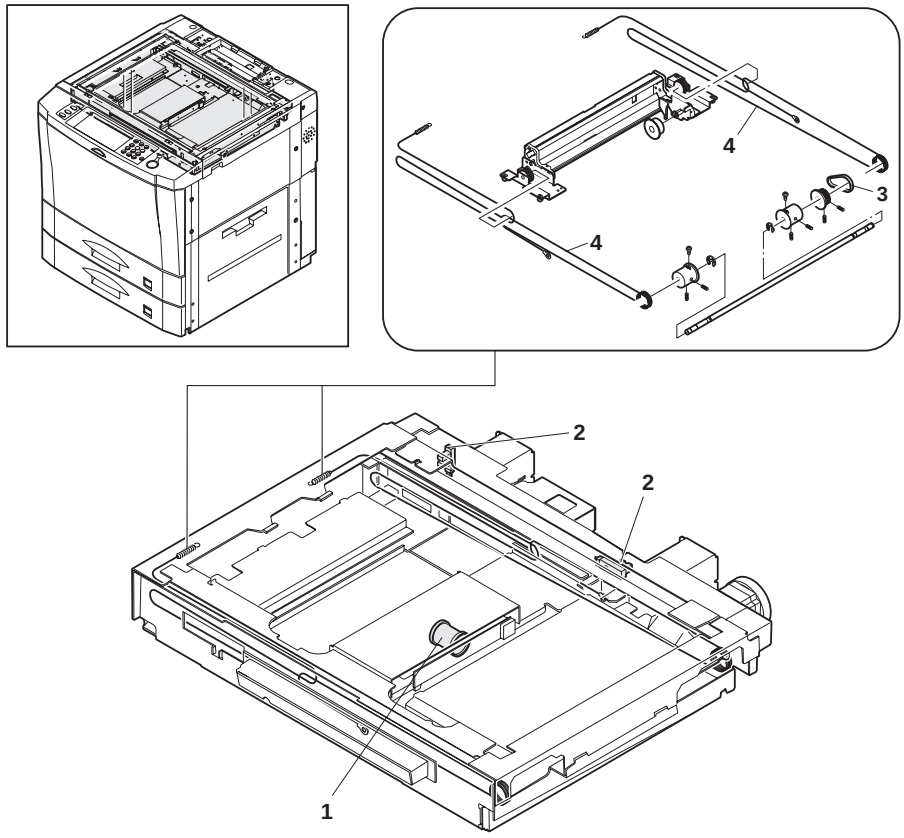
(4) Glass section





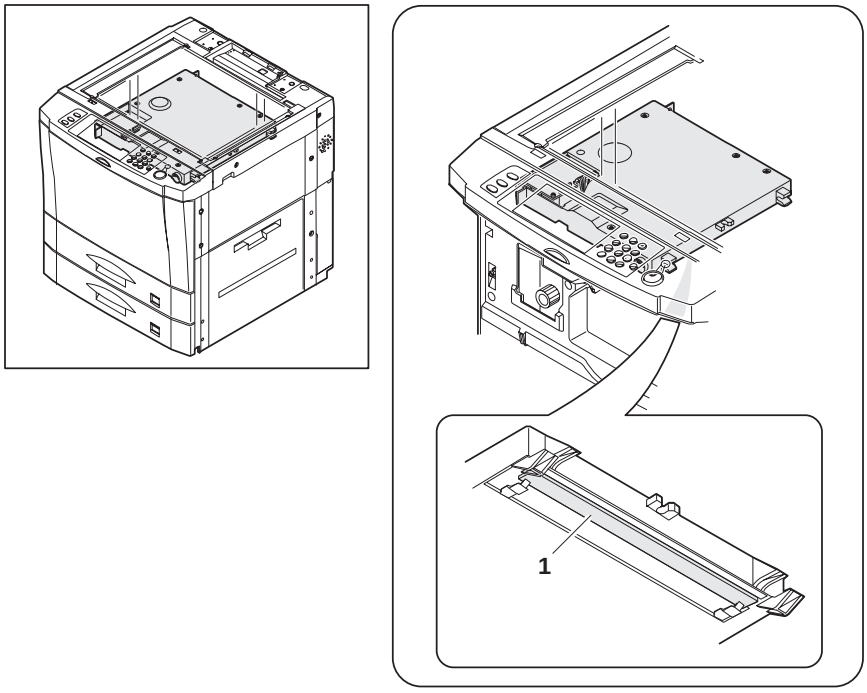
No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Table glass	Clean	80 K	90 K		
2	White reference glass	Clean	80 K	90 K		

(5) Scanner section



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Lens	Clean	80 K	90 K		Do not use screws.
2	Sensors	Clean	80 K	90 K		
3	Drive belt	Check	80 K	90 K		
4	Drive wire	Check	80 K	90 K		

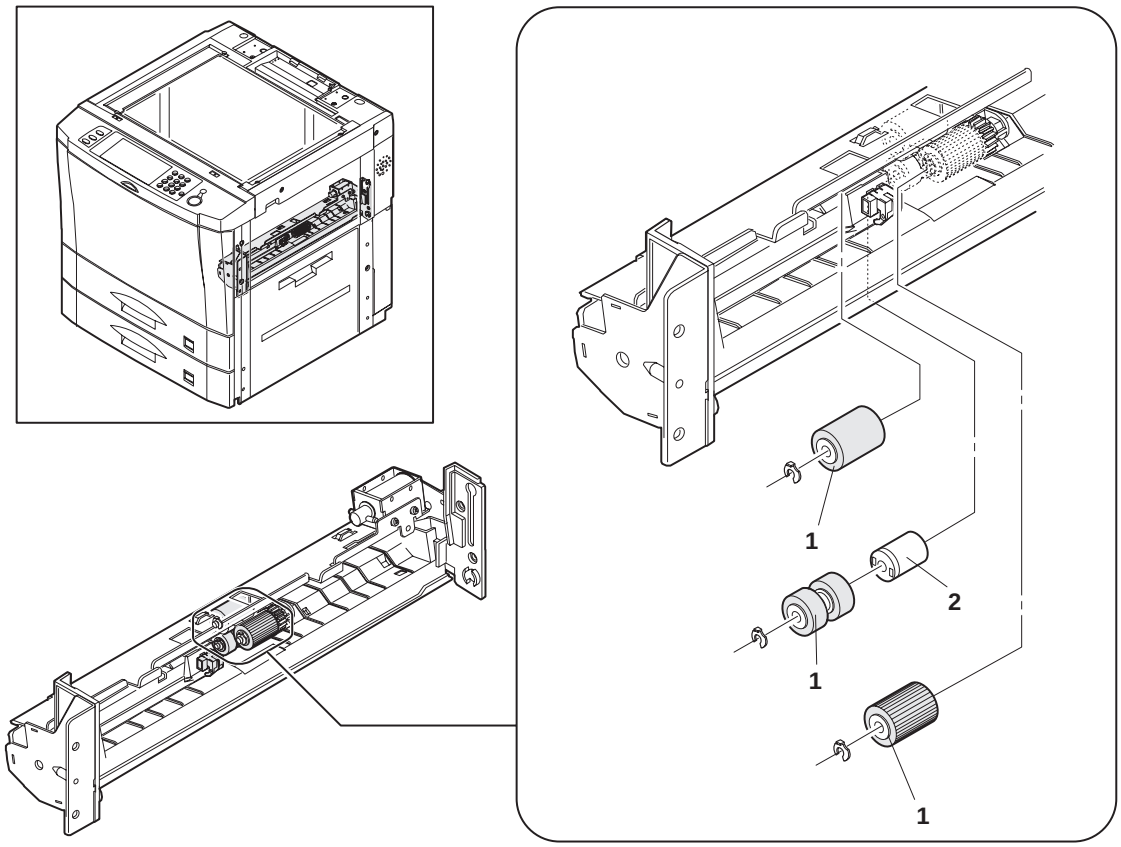
(6) Laser scanner unit



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Dust-proof glass	Clean	80 K	90 K		

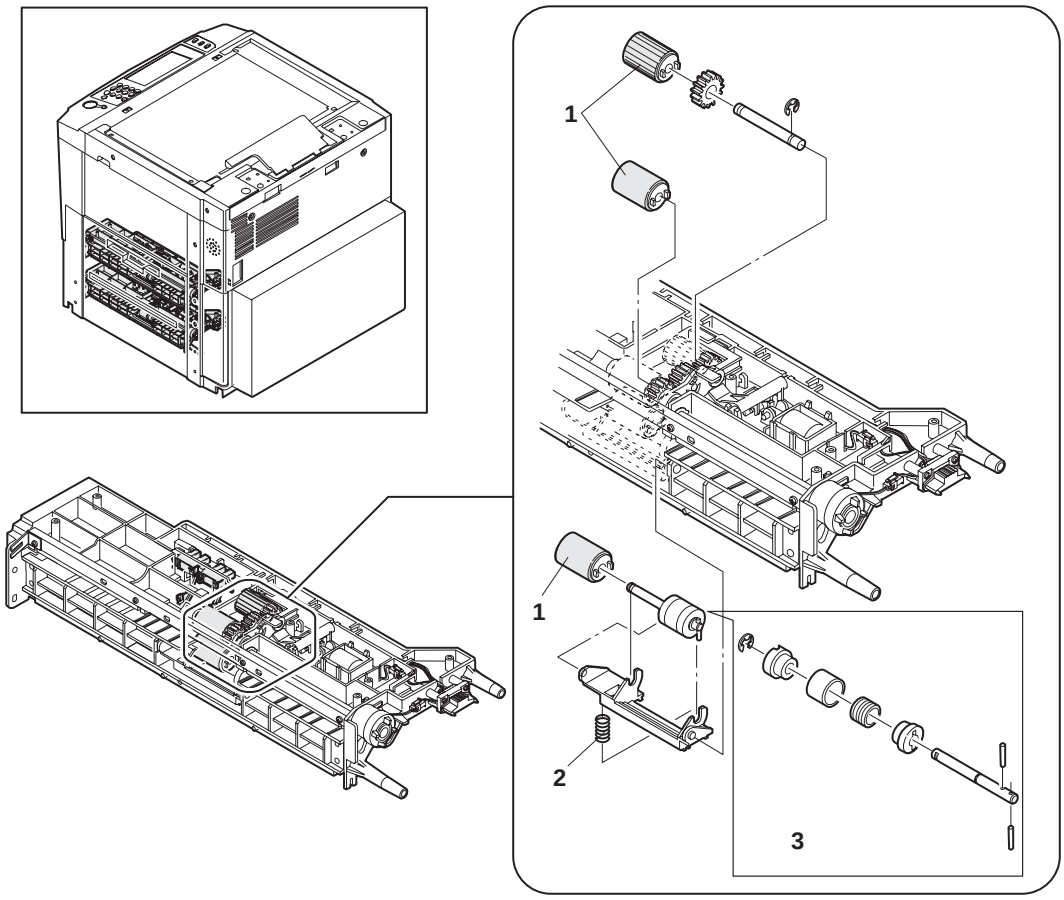
D. Paper feed section

(1) Manual paper feed tray paper feed section



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Rollers	Clean	80 K	90 K		
		Check	80 K	90 K		
		Replace	80 K or 2 years	90 K or 2 years		Reference: manual paper feed port counter
2	Torque limiter	Check	80 K	90 K		
		Replace	120 K or 2 years	120 K or 2 years		Reference: manual paper feed port counter

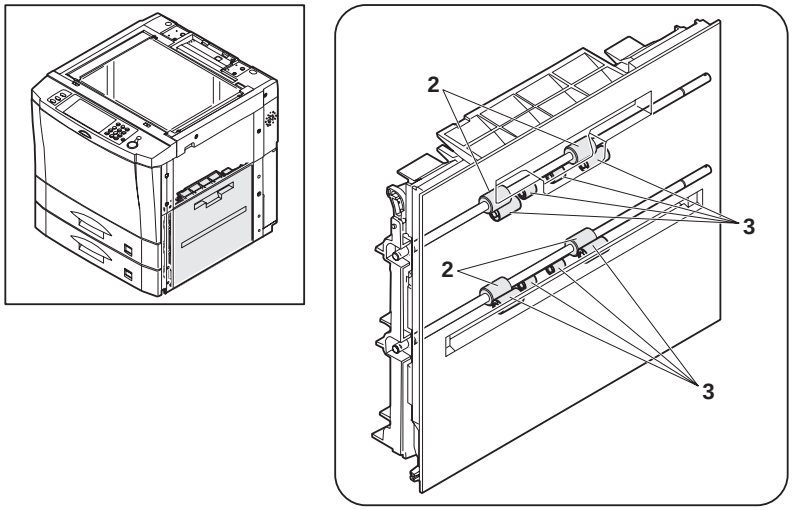
(2) Upper/lower cassettes

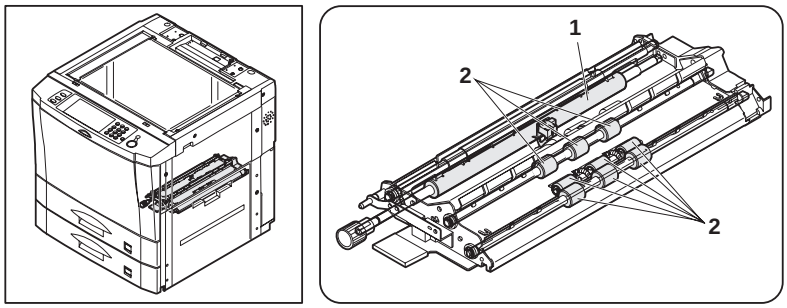


No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Rollers	Clean	80 K	90 K		
		Check	80 K	90 K		
		Replace	80 K or 2 years	90 K or 2 years		Reference: paper fed port counter
2	Brake spring	Check	80 K	90 K		
		Lubricate	160 K	180 K		
		Clean	160 K	180 K		
3	Torque limiter	Check	80 K	90 K		
		Lubricate	160 K	180 K		
		Clean	160 K	180 K		

E. Paper transport section

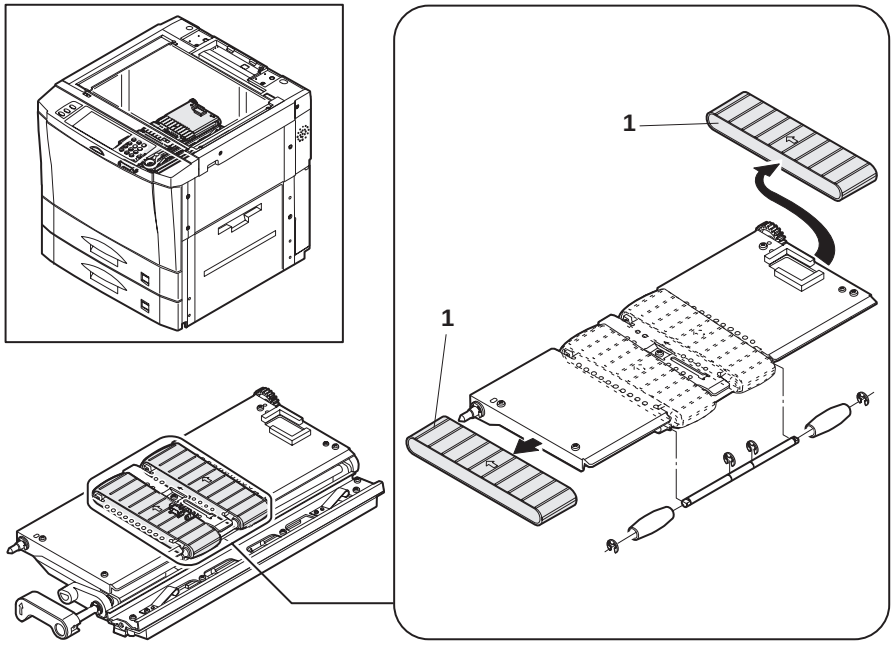
(1) Paper transport section





No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Resist roller	Clean	80 K	90 K		
2	Transport rollers	Clean	80 K	90 K		
3	Rollers	Clean	80 K	90 K		

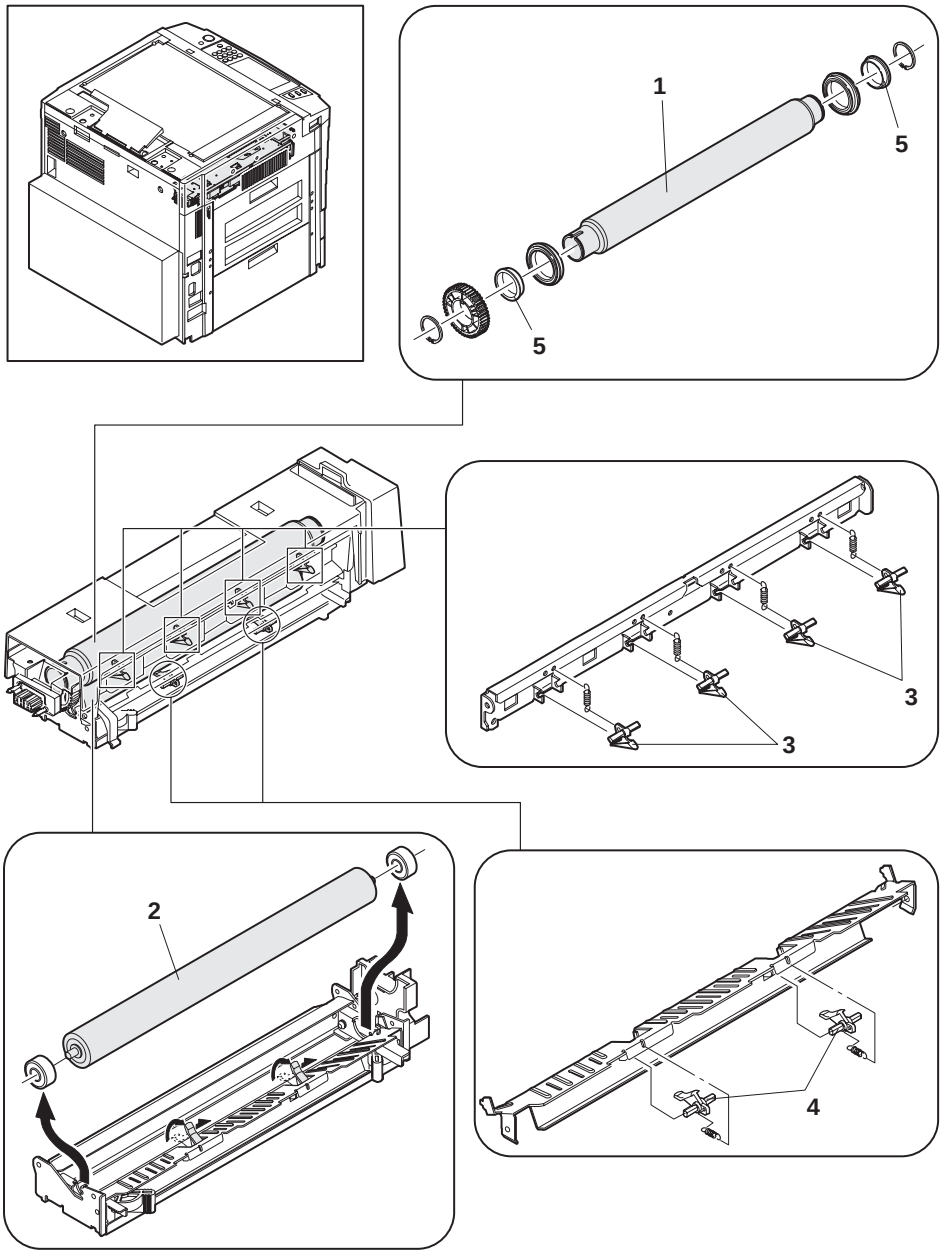
(2) Suction



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Suction belt	Clean	80 K	90 K		

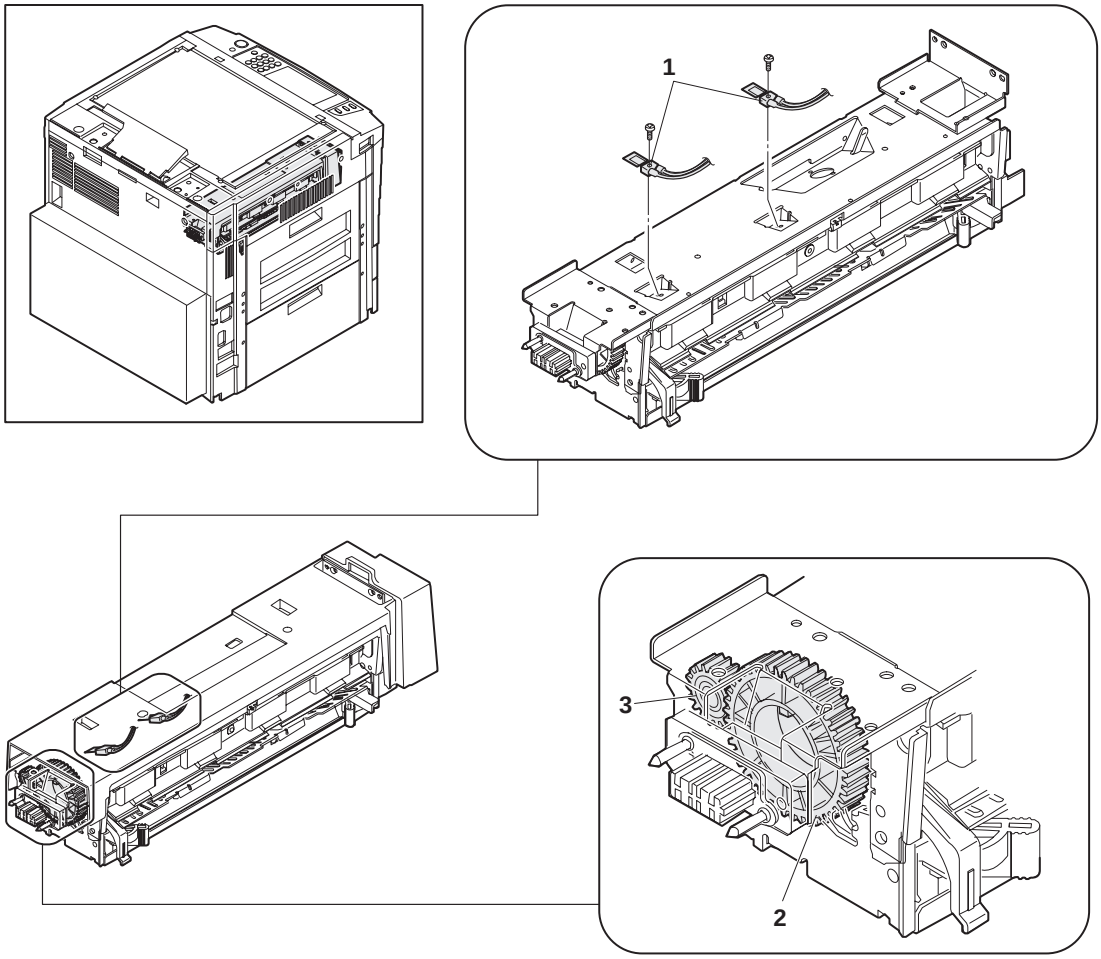
F. Fusing section

(1) Fusing unit 1



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Upper heat roller	Clean	80 K	90 K		
		Replace	160 K	180 K		
2	Lower heat roller	Clean	80 K	90 K		
		Replace	160 K	180 K		
3	Upper separation pawl	Replace	80 K	90 K		
4	Lower separation pawl	Replace	80 K	90 K		
5	Insulation bush	Check	80 K	90 K		

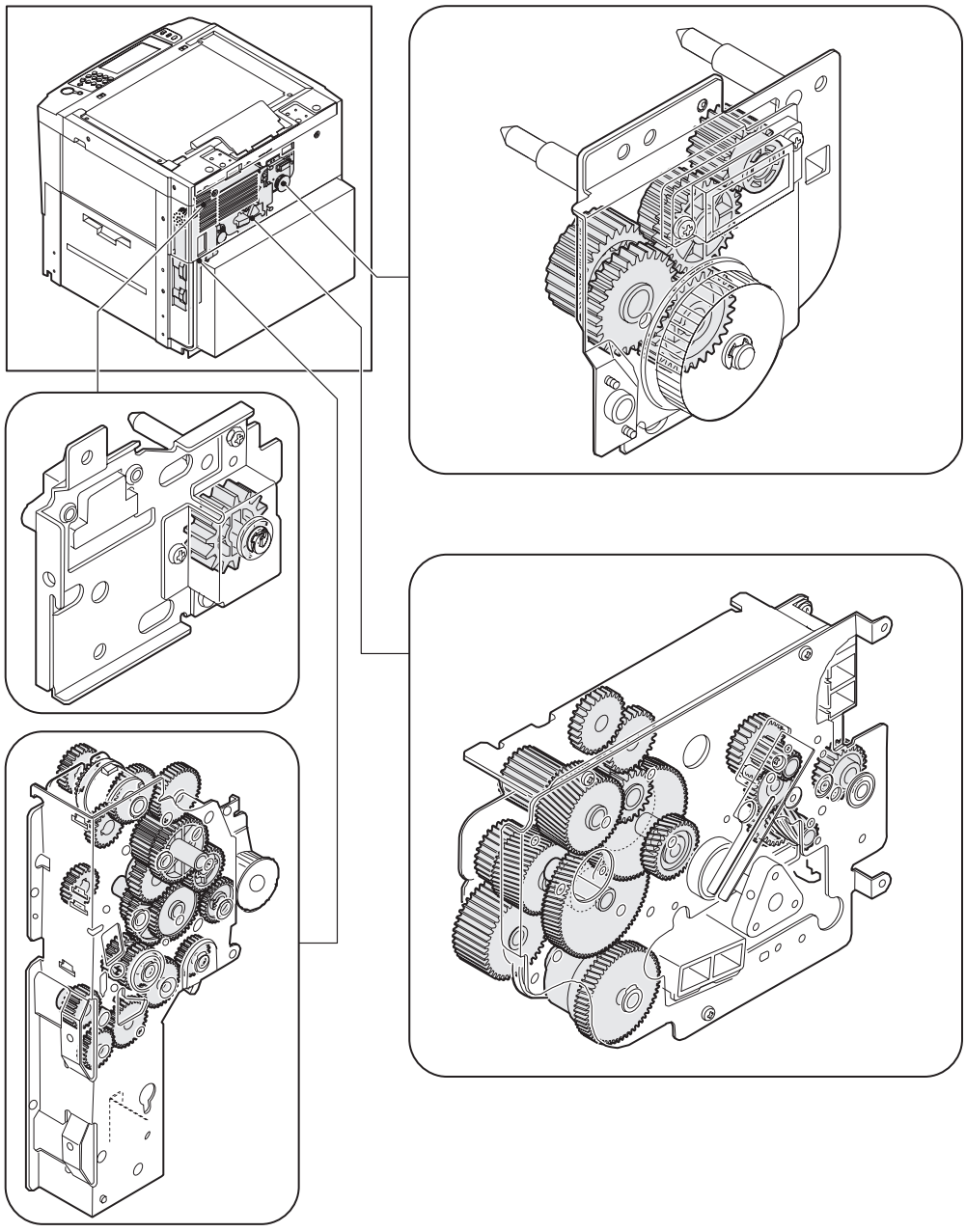
(2) Fusing unit 2



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
1	Thermistor	Check	80 K	90 K		
2	Upper heat roller gear	Lubricate	80 K	90 K		
		Replace	160 K	180 K		
3	Gears	Lubricate	80K	90 K		

✳ When assembling the upper frame and the lower frame, press the upper frame securely to the lower frame and fix with the screw.
If the frames are fixed loosely, defective fusing and paper wrinkles may occur.

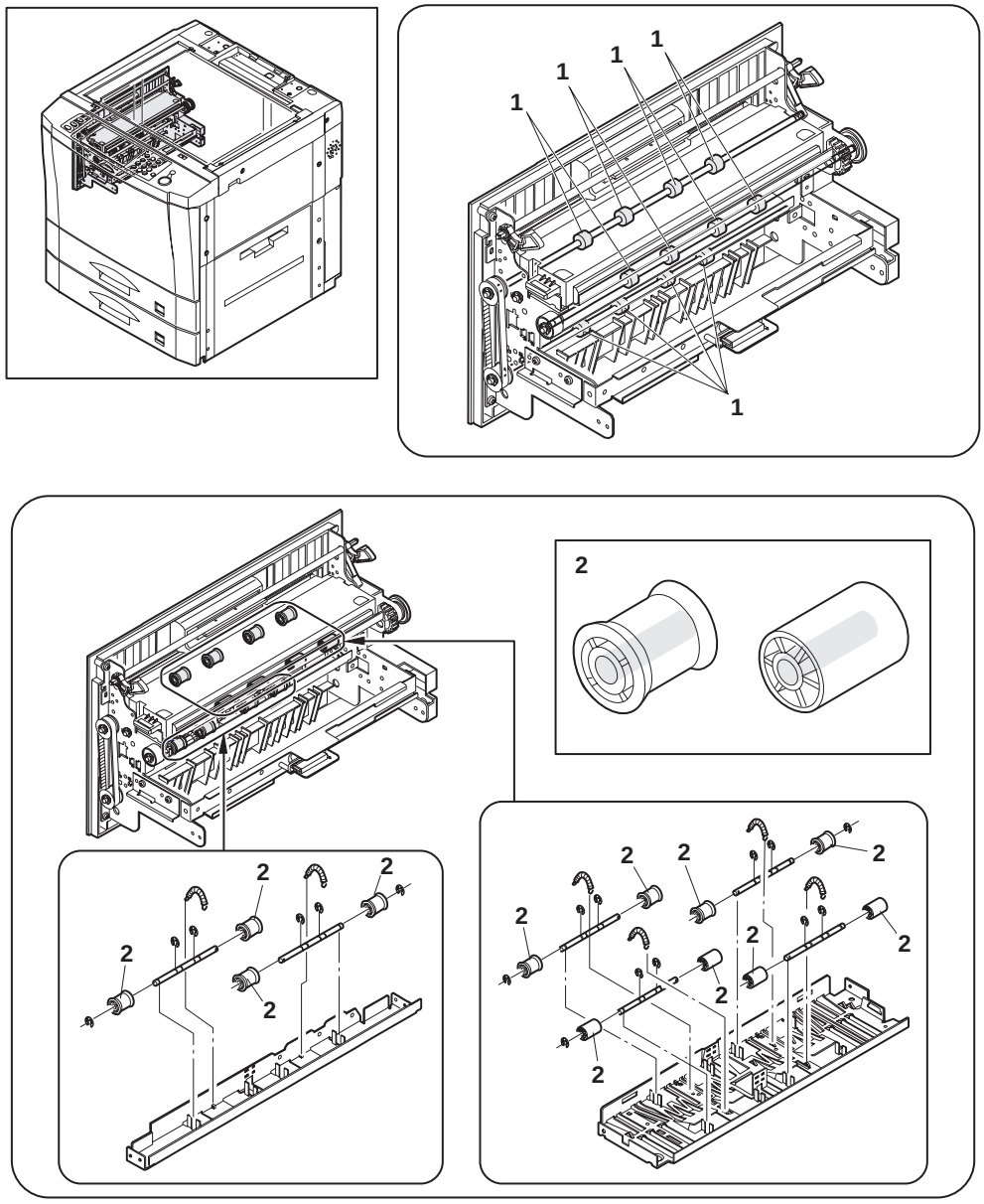
G. Drive section



No.	Name	Work item	Cycle		Model	Remark
			AR-335	AR-405		
	Gears	Lubricate	80 K	90 K		
	Belts	Check	240 K	270 K		

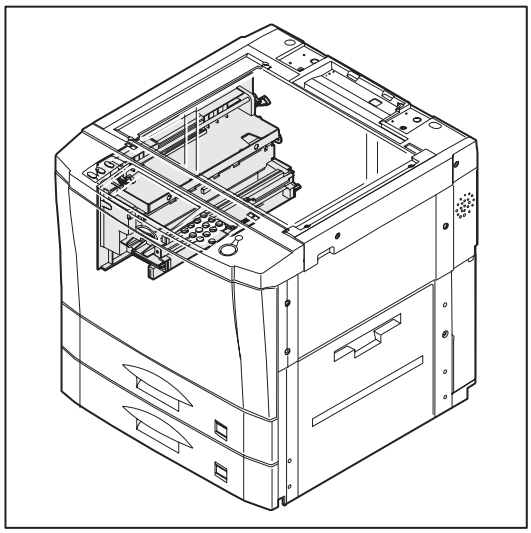
H. Two-tray paper exit unit

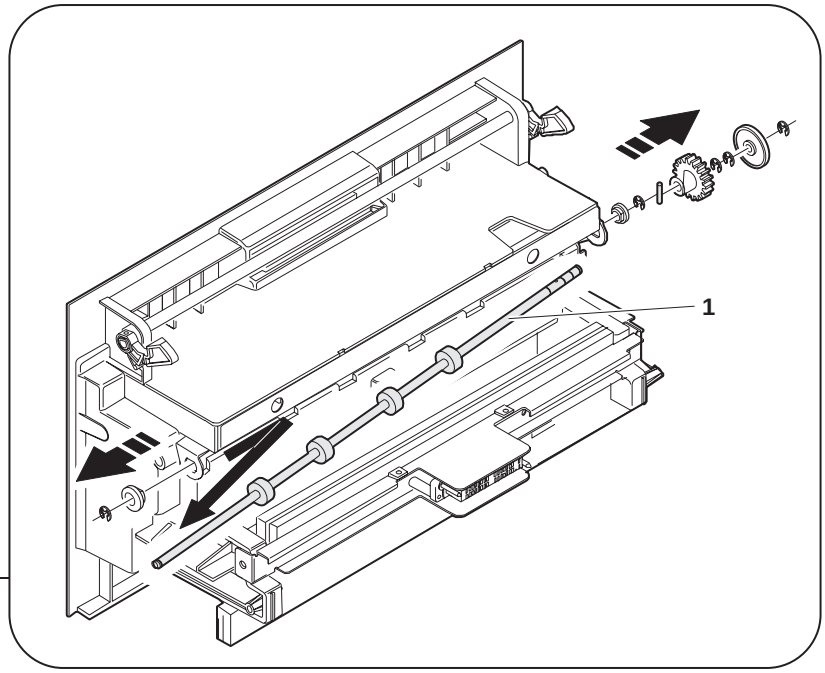
(1) Two-tray paper exit unit

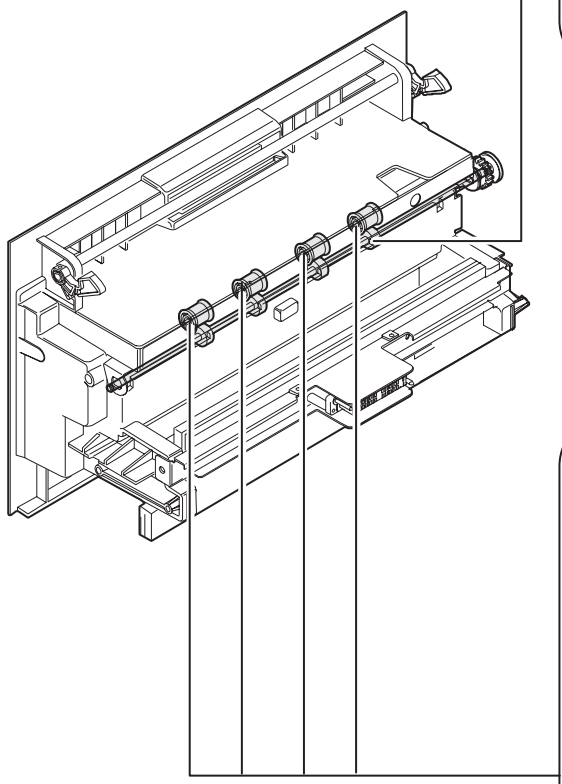


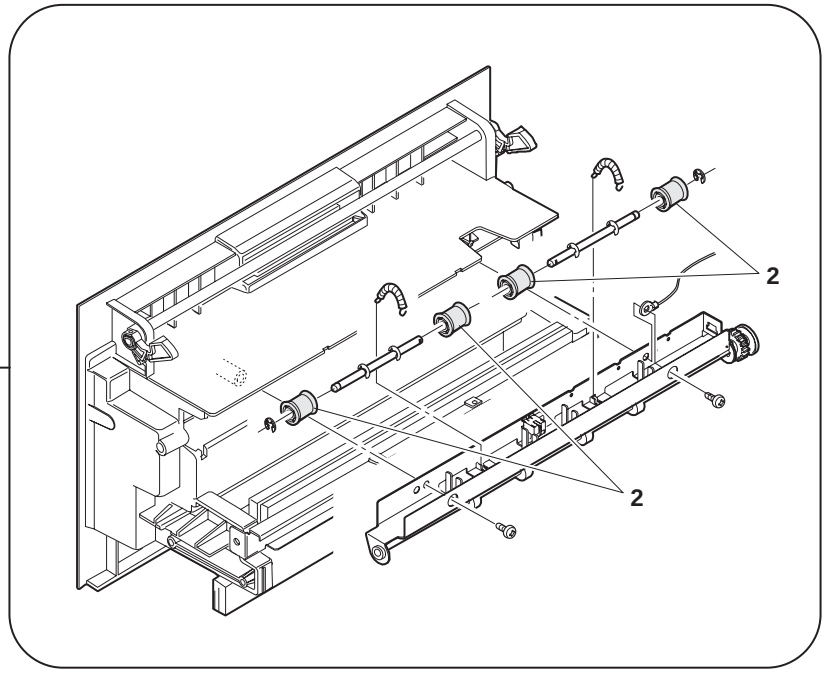
No.	Name	Work item	Cycle	Model	Remark
1	Transport rollers	Clean	80 K		
2	Paper exit follower roller (inner surface)	Lubricate	80 K		

(2) One-tray paper exit unit





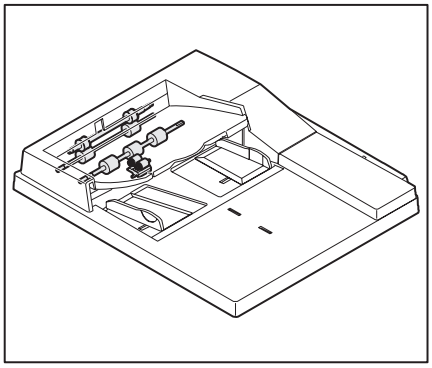


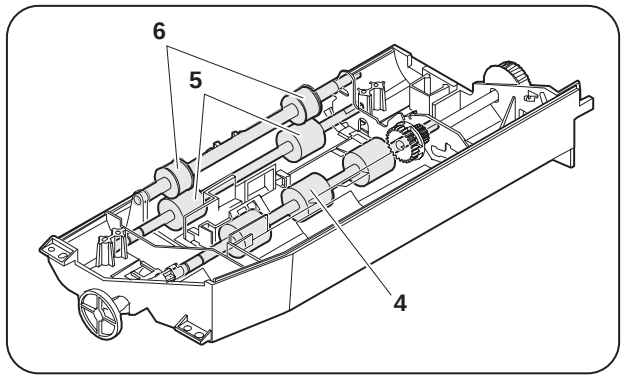


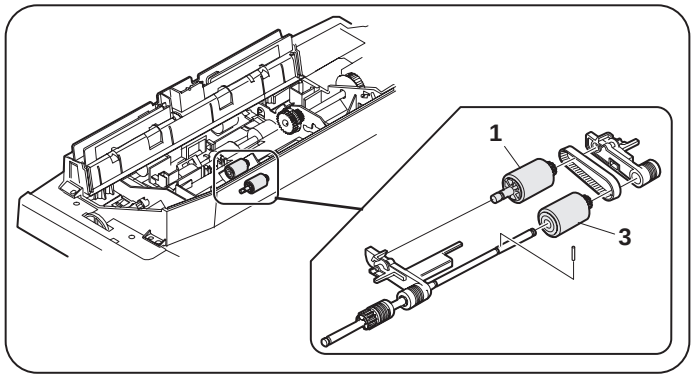
No.	Name	Work item	Cycle	Model	Remark
1	Transport rollers	Clean	80 K		
2	Paper exit follower roller (inner surface)	Lubricate	80 K		

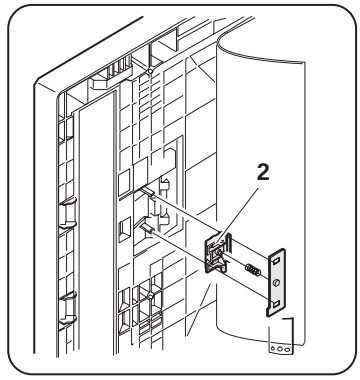
I. SPF

(1) Paper feed section, transport/paper exit section



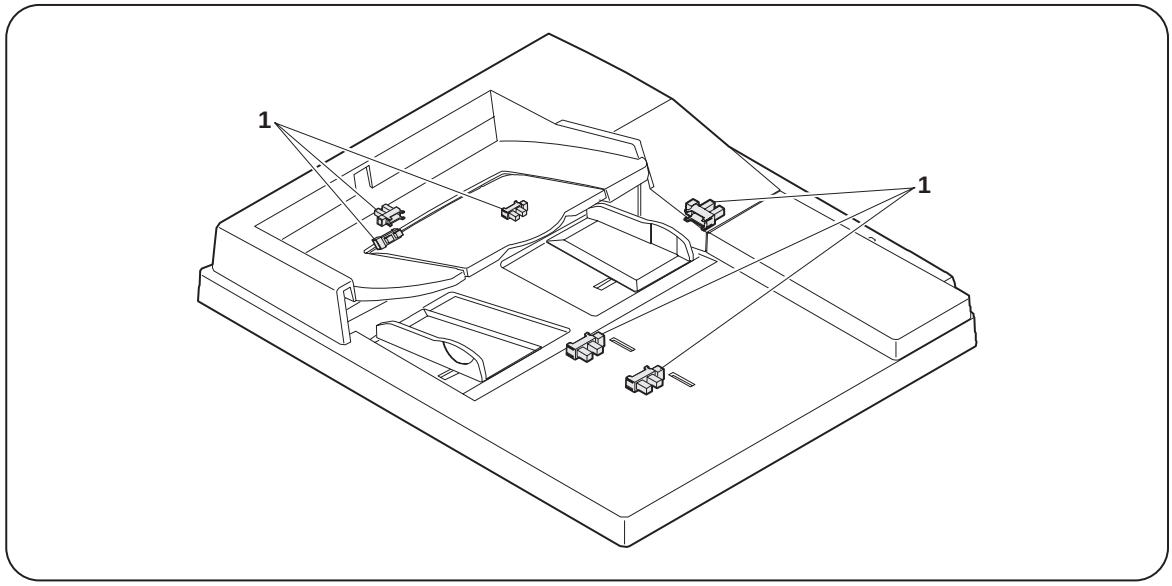






No.	Name	Work item	Cycle	Model	Remark
1	Pickup roller	Replace	80 K or 2 years	AR-280	
2	Separation pad	Replace	80 K or 2 years	AR-280	
3	Paper feed rollers	Replace	80 K or 2 years	AR-280	
4	Resist roller	Clean	80 K	AR-280	
5	Transport roller	Clean	80 K	AR-280	
6	Paper feed roller	Clean	80 K	AR-280	

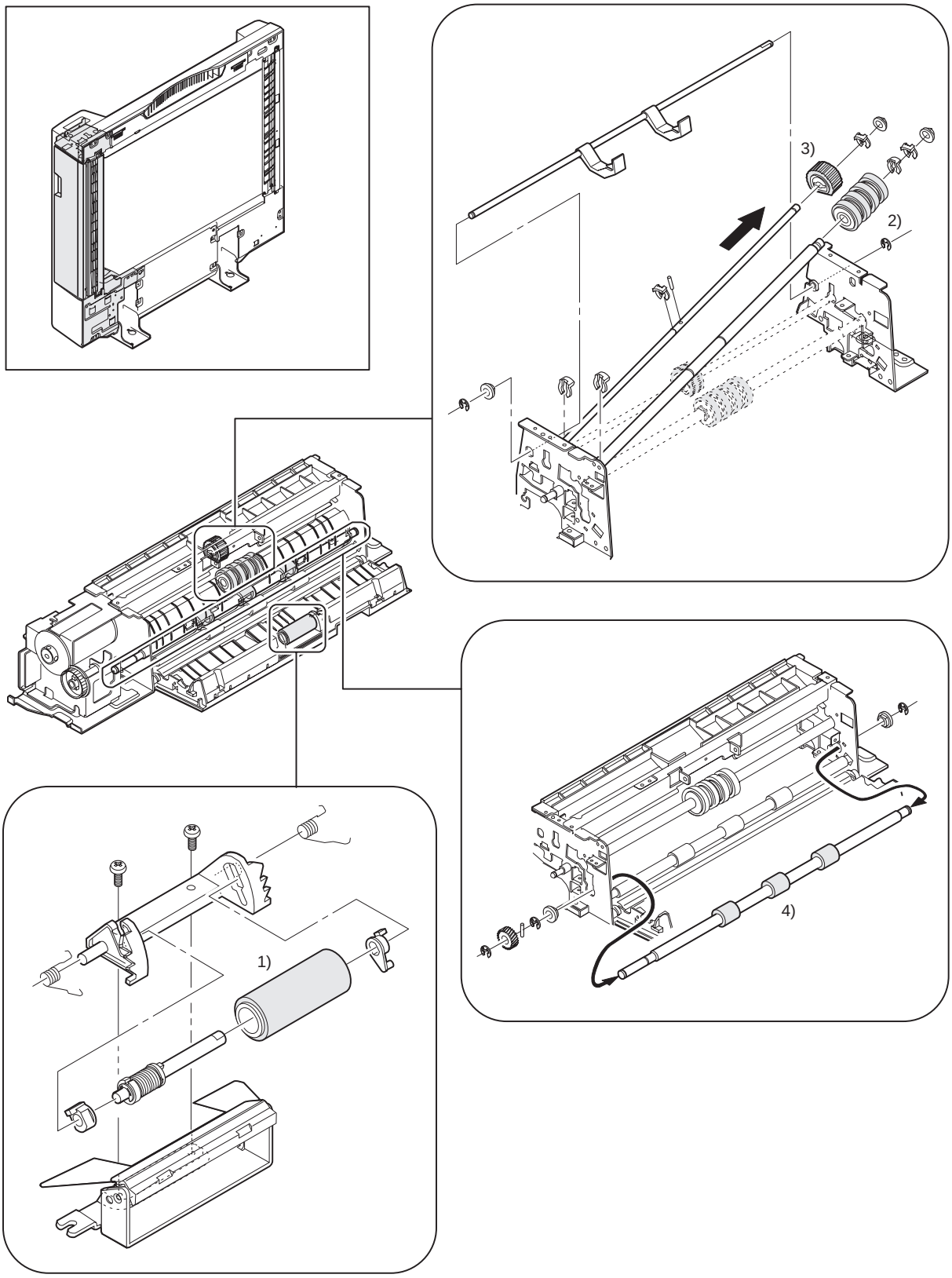
(2) Others



No.	Name	Work item	Cycle	Model	Remark
1	Sensors	Clean	80 K	AR-280	

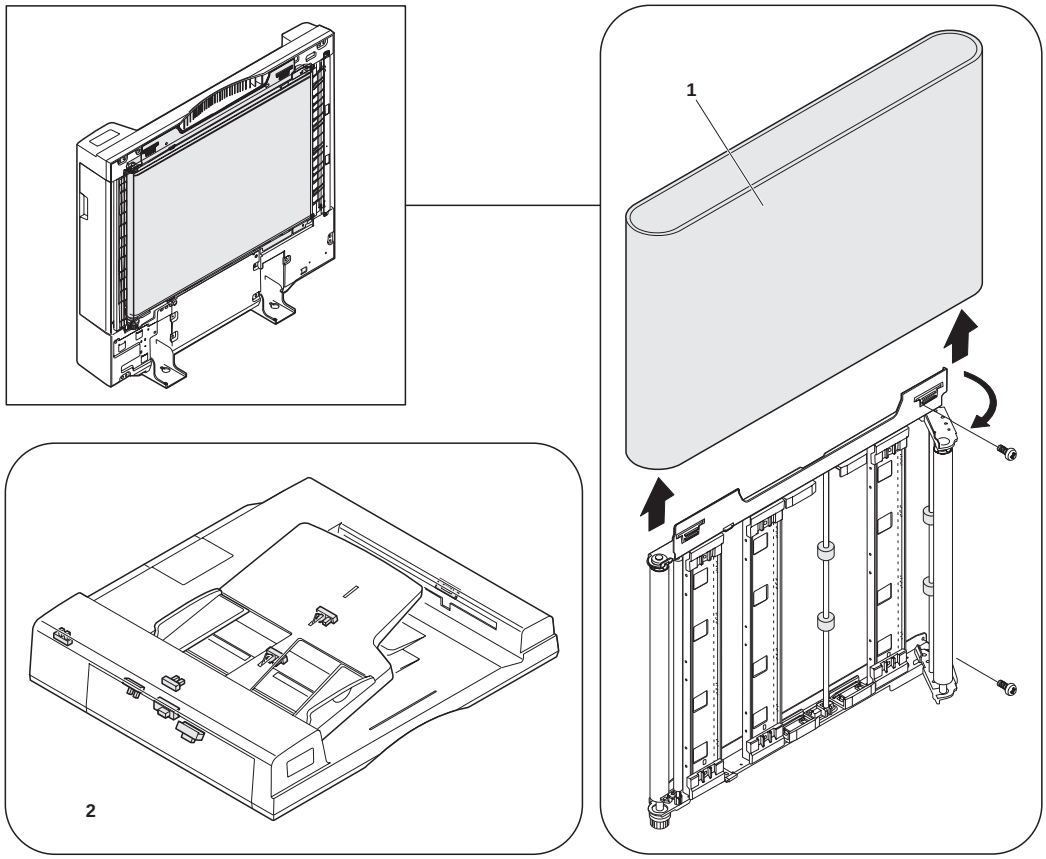
J. RADF

(1) Paper feed section



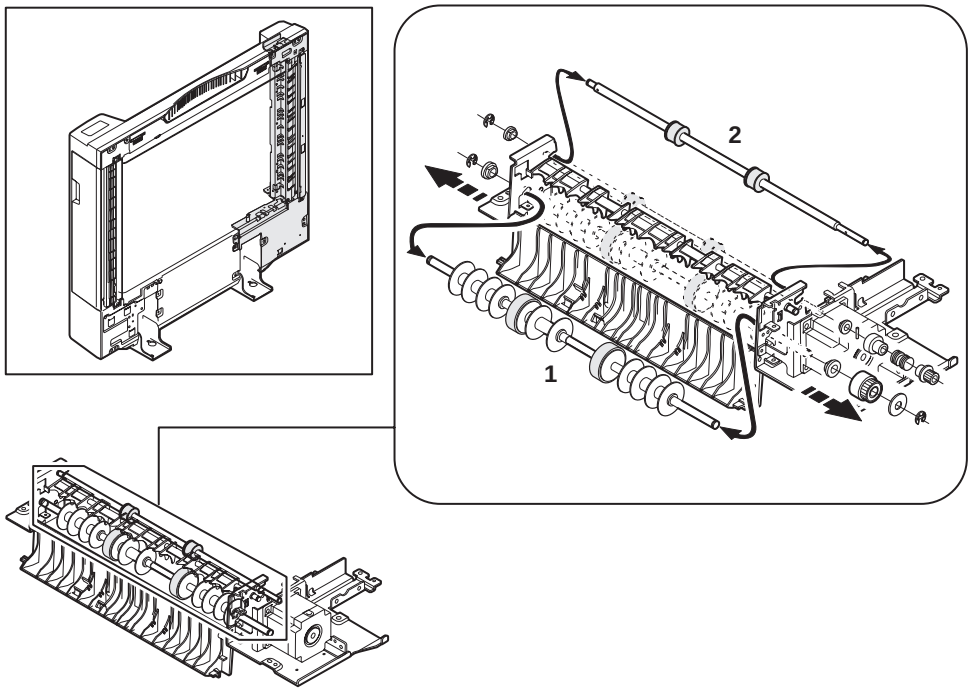
No.	Name	Work item	Cycle	Model	Remark
1	Pickup roller	Clean	80K or 2 years	AR-285/335	
2	Separation roller	Replace	80K or 2 years	AR-285/335	
3	Paper feed roller	Replace	80K or 2 years	AR-285/335	
4	Resist roller	Clean	80K	AR-285/335	

(2) Paper transport section



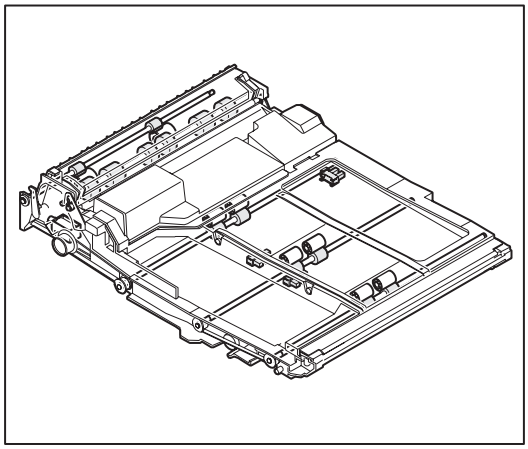
No.	Name	Work item	Cycle	Model	Remark
1	Transport belt	Clean	80K	AR-285/335	For cleaning, wipe with alcohol.
		Replace	160 K	AR-285/335	
2	Sensors	Clean	80K	AR-285/335	For cleaning, blow air.

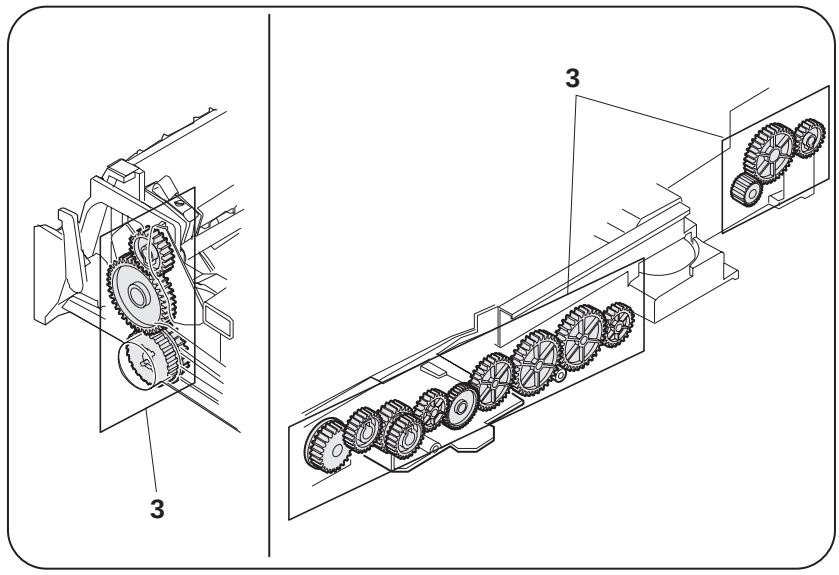
(3) Paper exit section

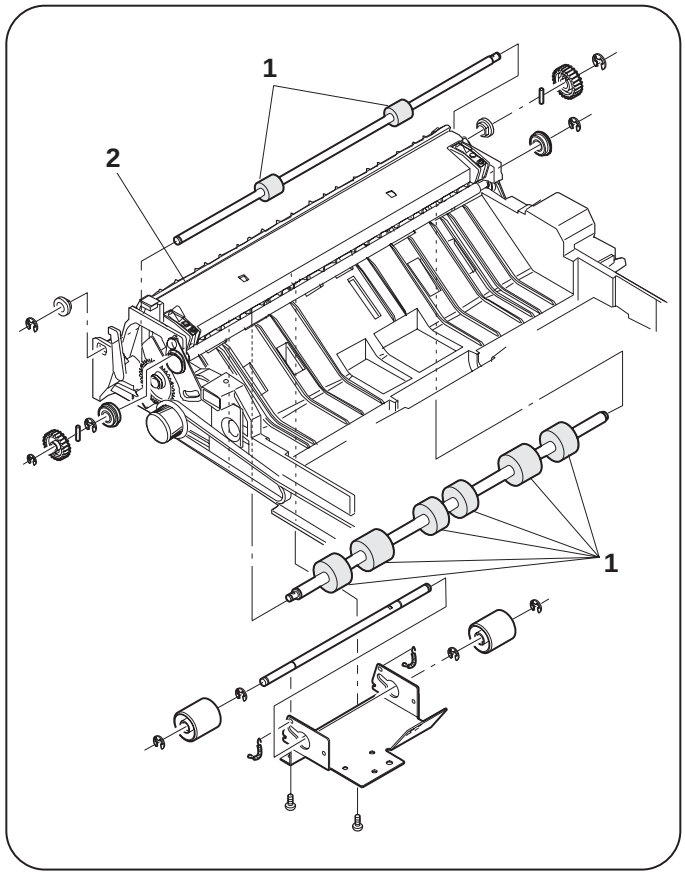


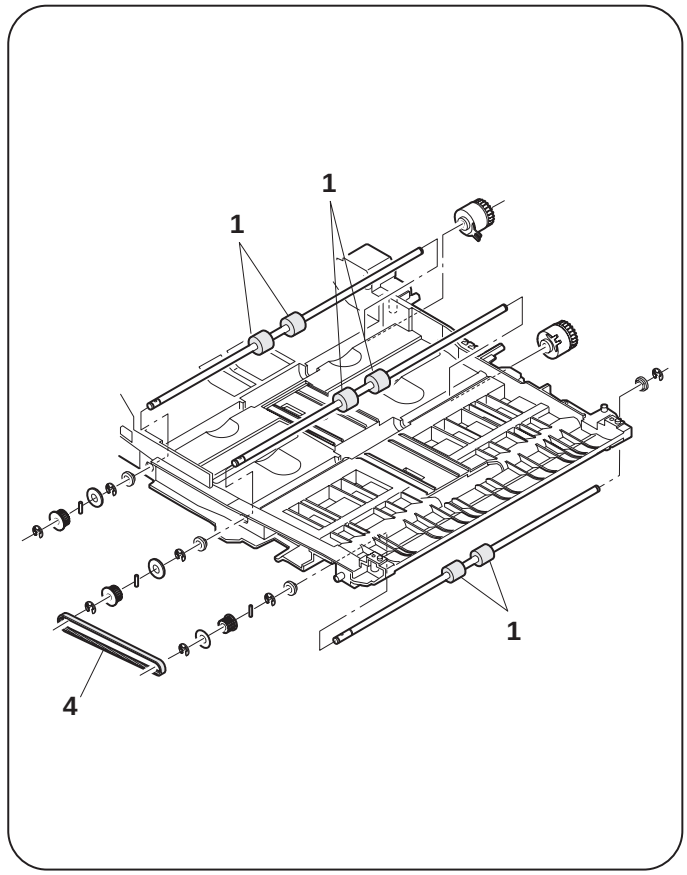
No.	Name	Work item	Cycle	Model	Remark
1	Reverse roller	Clean	80 K	AR-285/335	
2	Paper exit roller	Clean	80 K	AR-285/335	

K. ADU





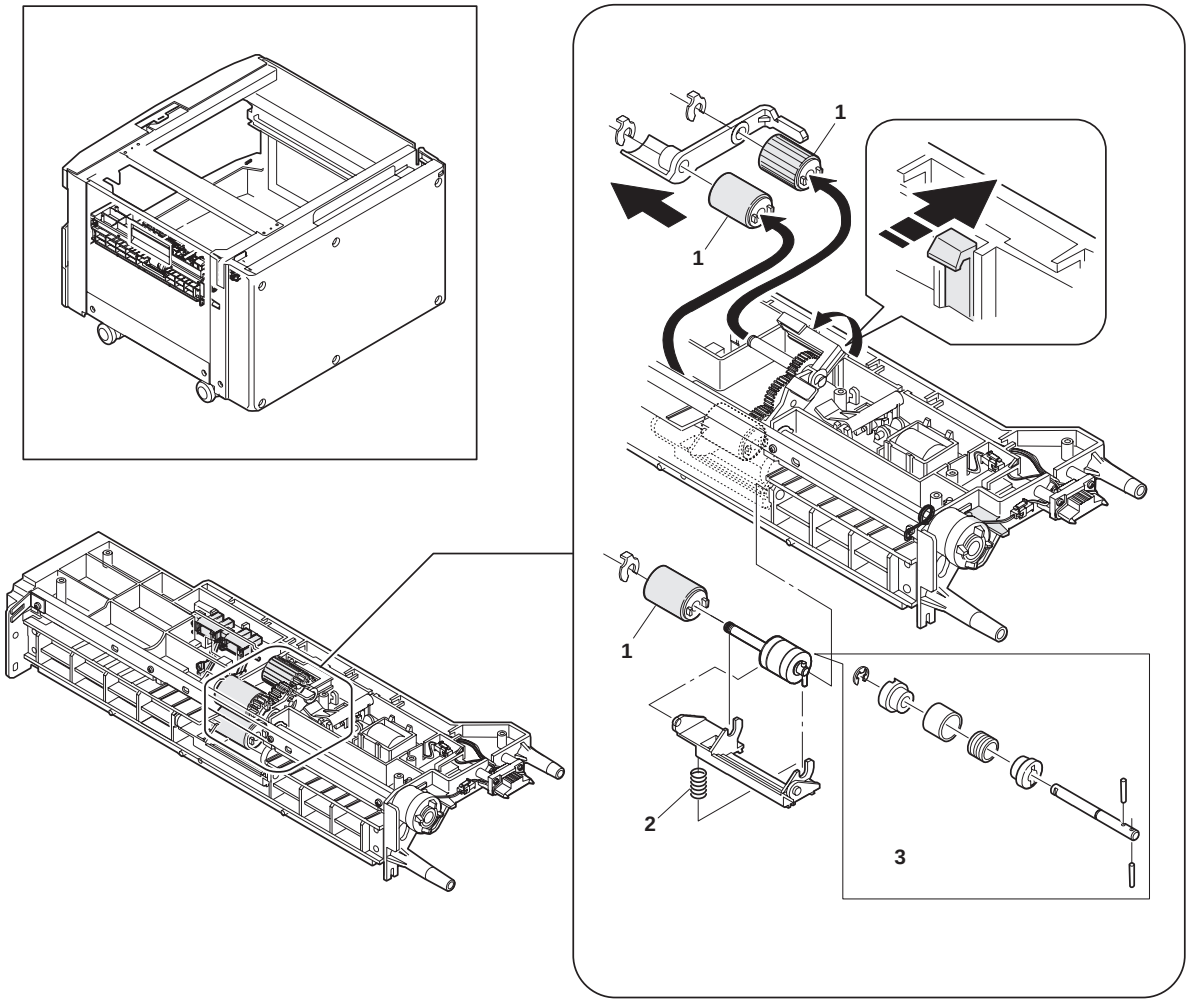




No.	Name	Work item	Cycle	Model	Remark
1	Transport rollers	Clean	80 K, 90 K	AR-285/335, 405 AR-DU1	
2	Transport paper guides	Clean	80 K, 90 K	AR-285/335, 405 AR-DU1	
3	Gears	Lubrication	80 K, 90 K	AR-285/335, 405 AR-DU1	Morikote grease EM-30L is used.
4	Belts	Check	240 K, 270 K	AR-285/335, 405 AR-DU1	

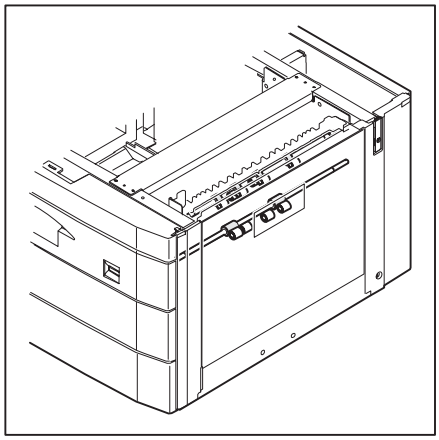
L. Desk

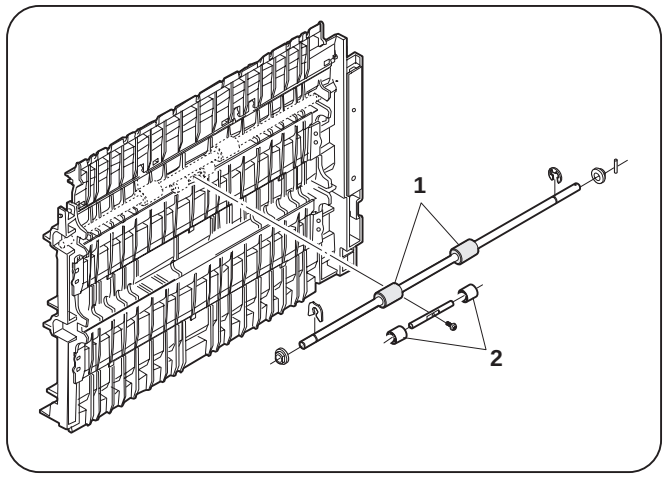
(1) Paper feed section

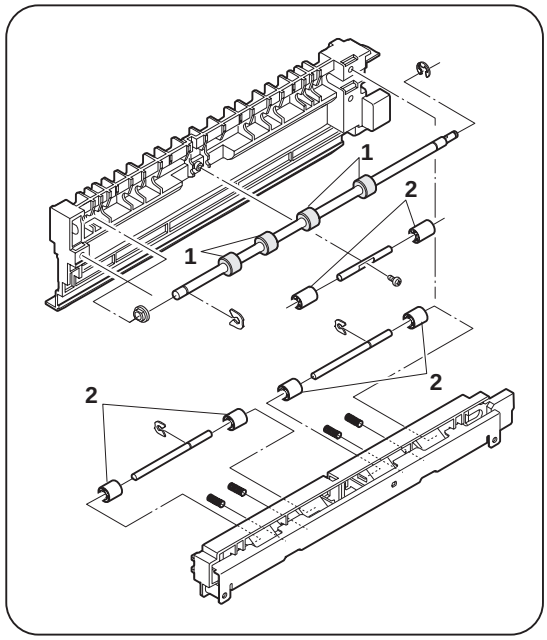


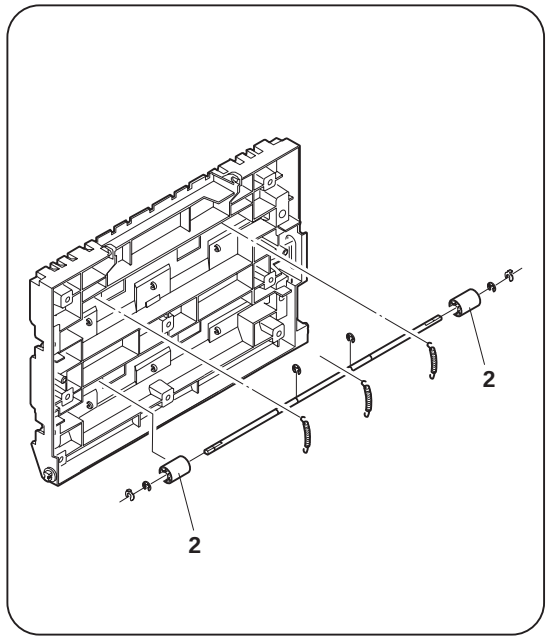
No.	Name	Work item	Cycle	Model	Remark
1	Rollers	Check	80 K, 90 K	AR-DE1, DE1N	Reference: paper feed port counter
2	Brake spring	Lubricate	160 K, 180 K	AR-DE1, DE1N	
3	Torque limiter	Check	80 K, 90 K	AR-DE1, DE1N	
		Replace	120 K or 2 years	AR-DE1	Reference: Paper feed port counter

(2) Paper transport section



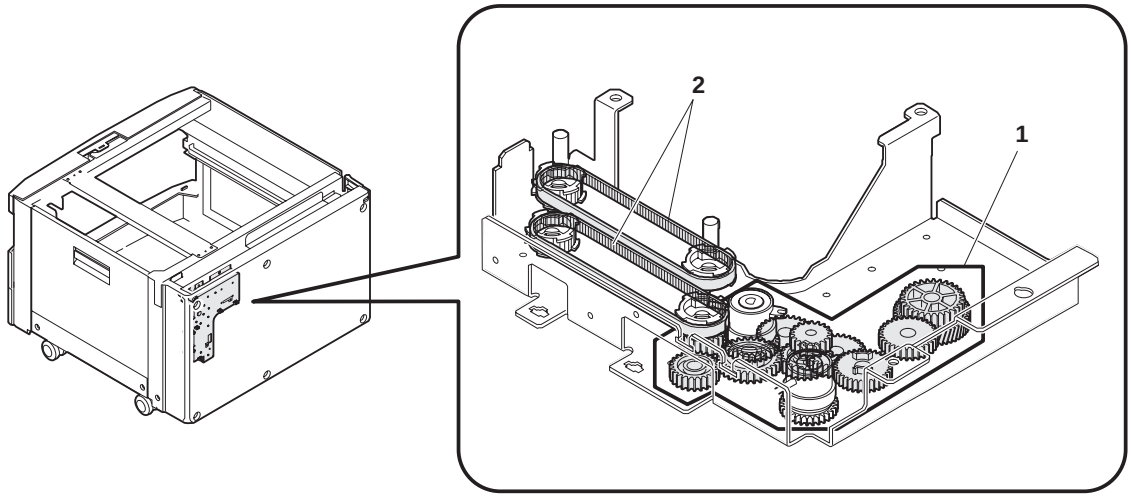


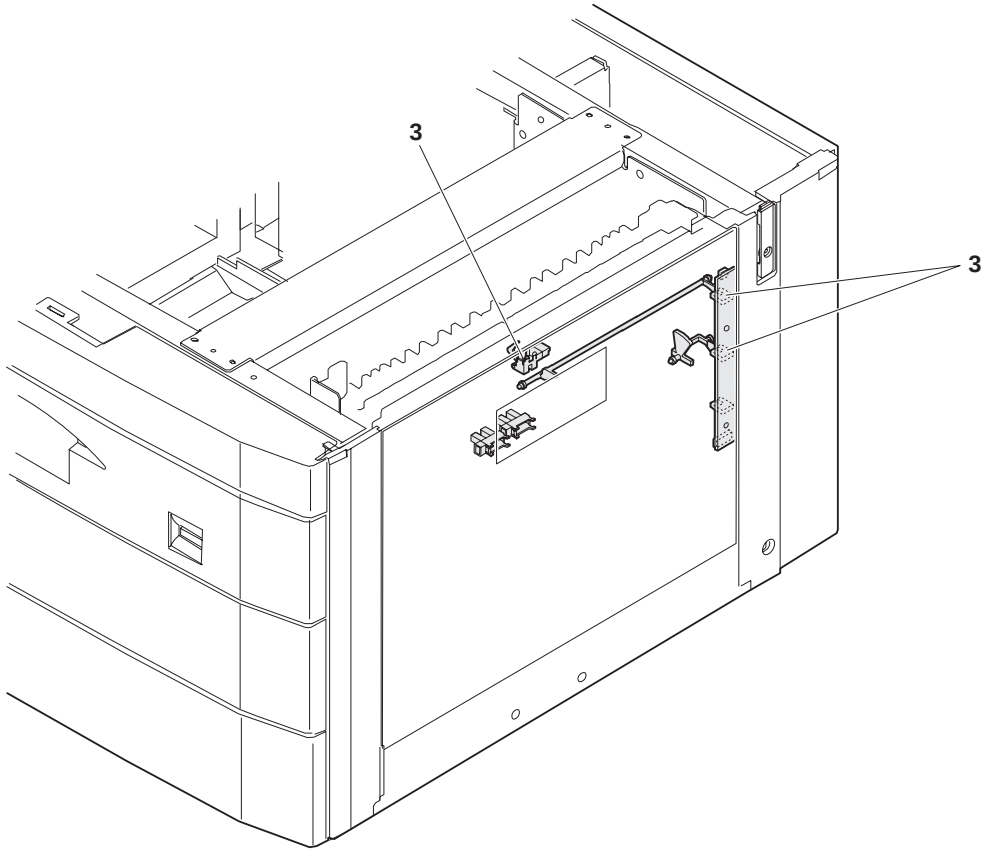




No.	Name	Work item	Cycle	Model	Remark
1	Transport rollers	Clean	80 K, 90 K	AR-DE1, DE1N	
2	Rollers	Clean	80 K, 90 K	AR-DE1, DE1N	

(3) Drive section, others

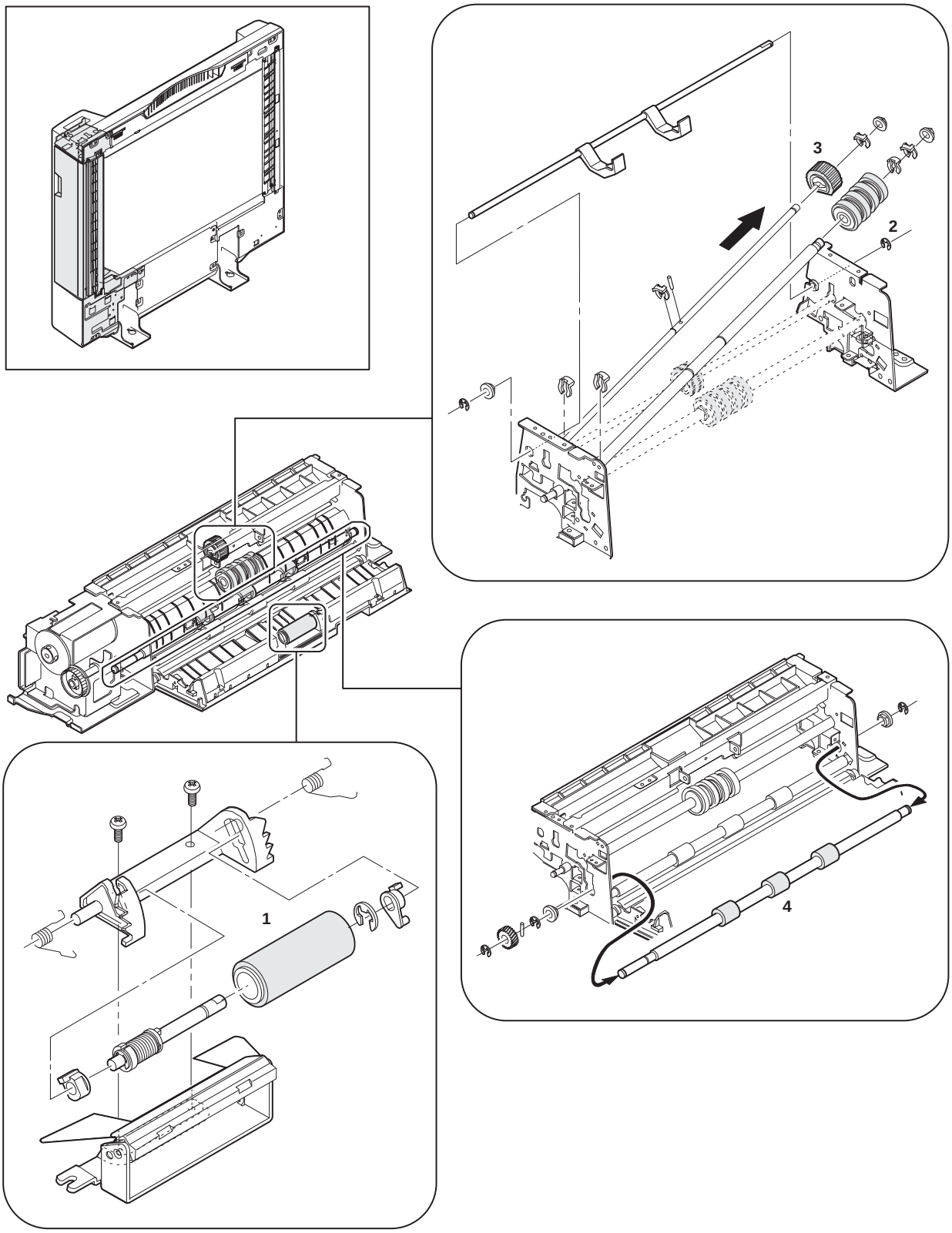




No.	Name	Work item	Cycle	Model	Remark
1	Gears	Lubricate	80 K, 90 K	AR-DE1, DE1N	
2	Belts	Check	240 K, 270 K	AR-DE1, DE1N	
3	Sensors	Check	80 K, 90 K	AR-DE1, DE1N	

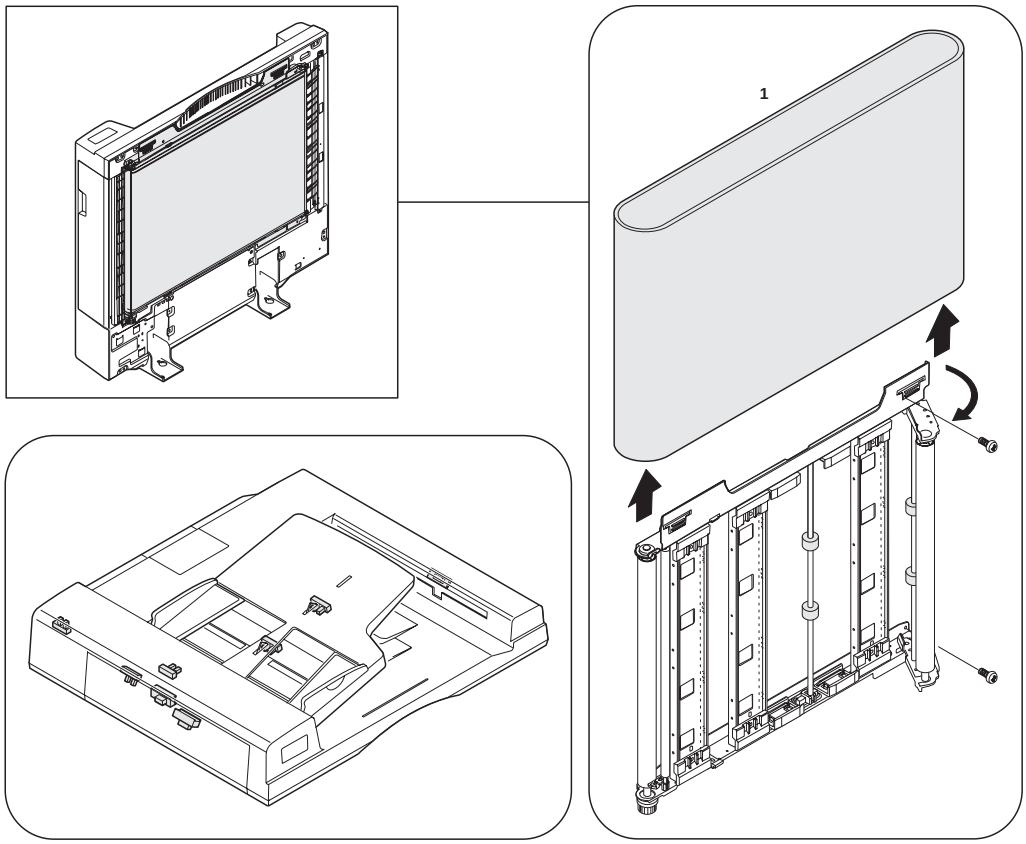
M. RADF (AR-RF2)

(1) Paper feed section



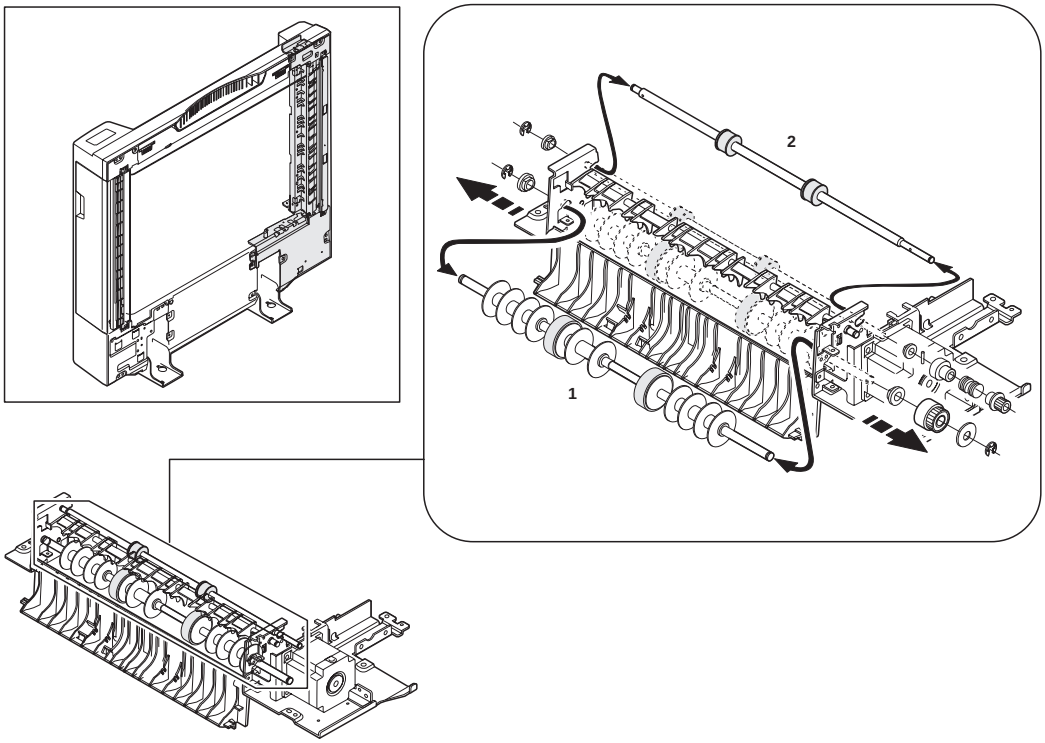
No.	Name	Work item	Cycle	Remark
1	Pickup roller	Cleaning	90K	
2	Separation roller	Cleaning	60K or 2years	
		Replacement	90K or 2years	
3	Paper feed roller	Cleaning	60K or 2 years	
		Replacement	90K or 2years	
4	Resist roller	Cleaning	40K	

(2) Transport section



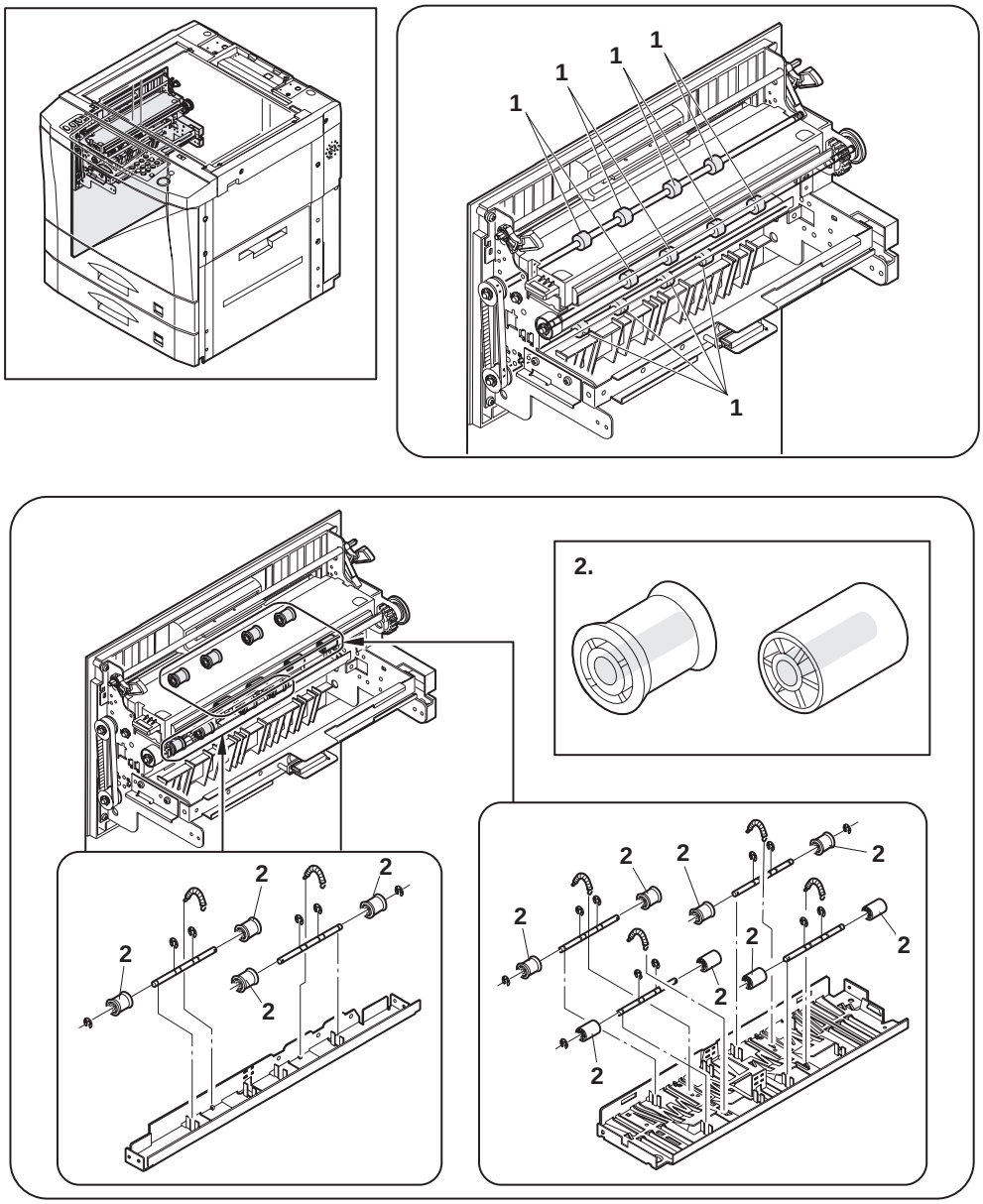
No.	Name	Work item	Cycle	Remark
1	Transport belt	Cleaning	60K	Use alcohol to clean.
		Replacement	180K	
2	Sensors	Cleaning	90K	Blow air to clean

(3) Paper exit section



No.	Name	Work item	Cycle	Model	Remark
1	Reverse roller	Cleaning	60K	AR-RF1	
2	Paper exit roller	Cleaning	90K		

N. 2-Tray paper exit unit (AR-TR1)



No.	Name	Work item	Cycle	Remark
1	Transport rollers	Cleaning	40k	
2	Paper exit follower roller (inside)	Lubrication	40k	

[10] DISASSEMBLY AND ASSEMBLY

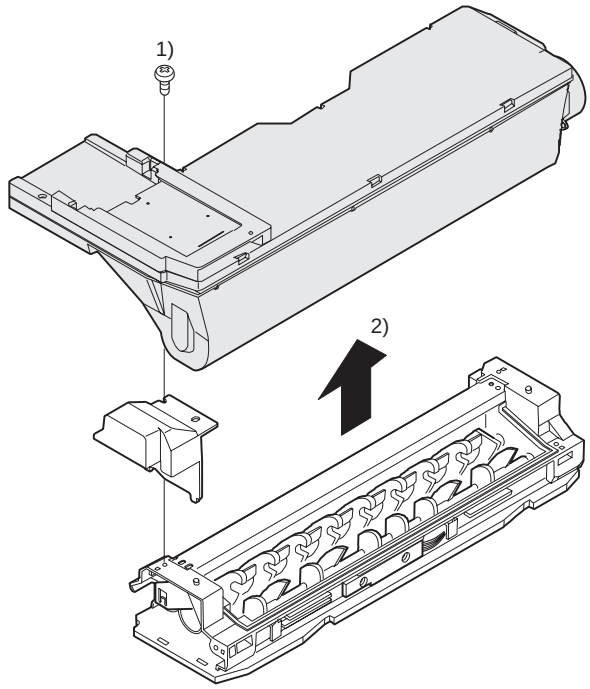
1. List of disassembly and assembly

Unit	Parts
Developing unit	A. Toner hopper
	B. Developing side seal (F/R)
Drum unit	A. OPC drum
	B. Drum separation pawl
	C. Cleaner blade
	D. Toner reception seal
	E. Main charger
	F. Transfer/separation charger
Discharge lamp	A. Discharge lamp
Scanner unit	A. Table glass
	B. White reference glass (SPF scanning glass)
	C. Copy lamp
	D. CCD unit
ICU peripheral	A. HD unit
	B. ICU PWB
Laser scan unit	A. Laser scan unit
Manual paper feed unit	A. Manual paper feed sensor
	B. Rollers/torque limiters
500 tray paper feed unit	A. Tray unit
	B. Tray paper feed unit
Transport unit	A. Transport roller
Suction unit	A. Suction unit
Fusing unit	A. Thermistor
	B. Upper fusing separation pawl
	C. Lower fusing separation pawl
	D. Lower heat roller
	E. Upper heat roller
	F. Upper heat roller gear
2 Tray paper exit unit	A. Paper exit/transport roller
	B. Paper exit roller
PCU/AC power/ High voltage power/Main motor	A. PCU/AC power/High voltage power/ Main motor
Major drive unit	A. Major drive unit
Lift-up unit	A. Lift-up unit
SPF unit	A. Upper cover
	B. Pick-up roller/paper feed roller
	C. Transport roller
RADF unit	A. RADF unit
	B. Document transport belt
	C. Paper feed unit
	D. Semi-circular roller/paper feed roller
	E. Separation roller
	F. Paper exit unit
ADU	A. ADU
	B. Upper transfer section
	C. Transfer roller
	D. Reverse, transfer roller

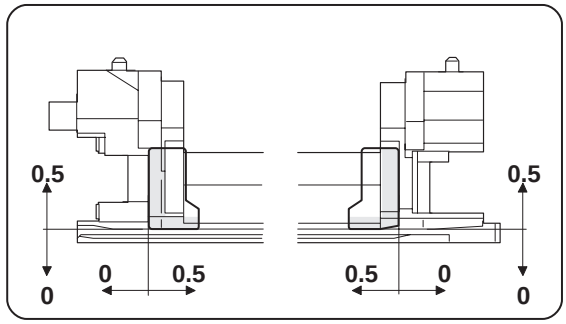
2. Developing unit

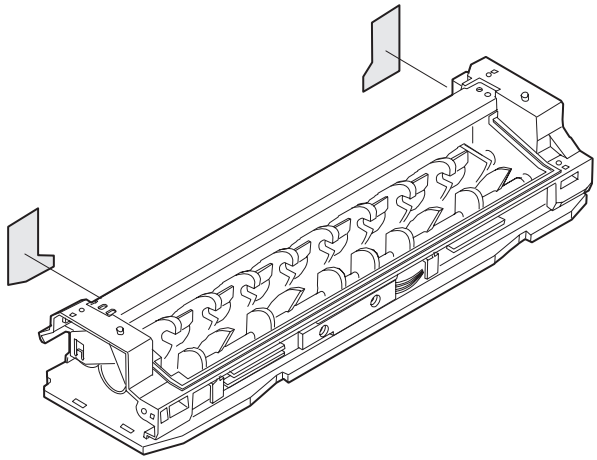
∗ After replacing developer, execute SIM 24-5 to clear the developer counter.

A. Toner hopper



B. Developing side seal



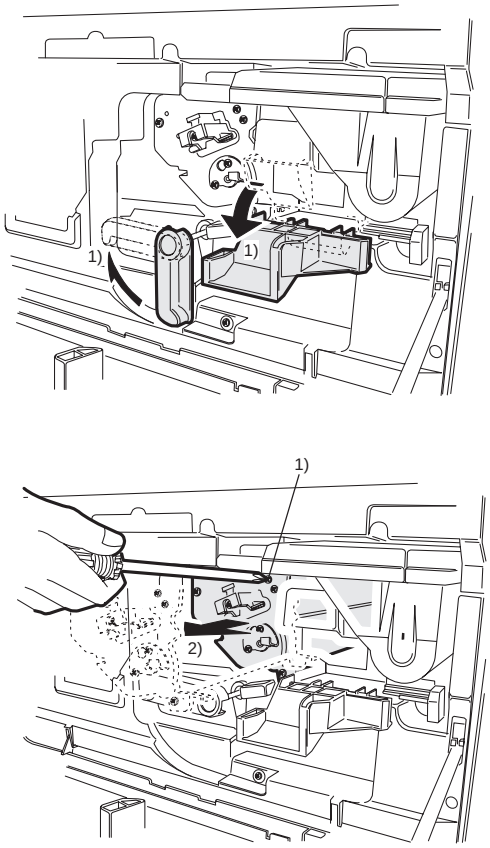


∗ Attache the developing side seals to the dimensions specified above.

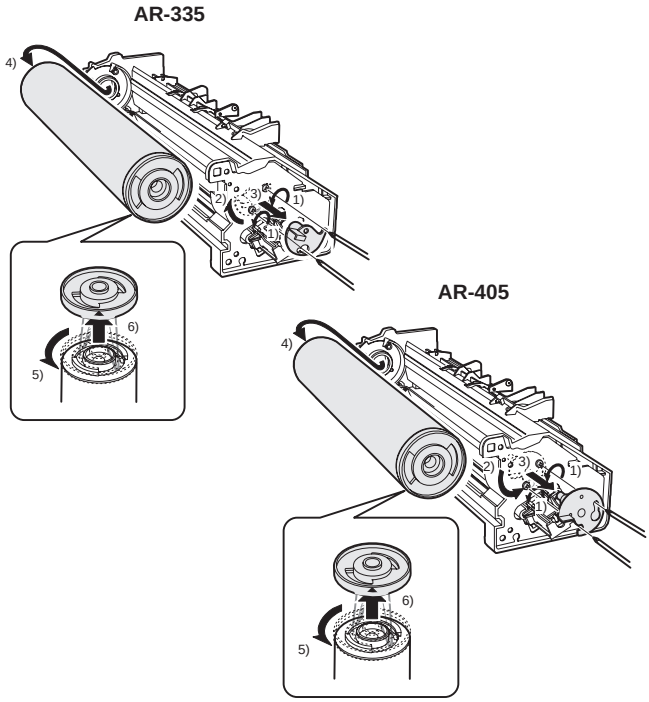
3. Drum unit

AR-335

Show only one illustration of the AR-335 and specify that the shape of the drum positioning plate is different.

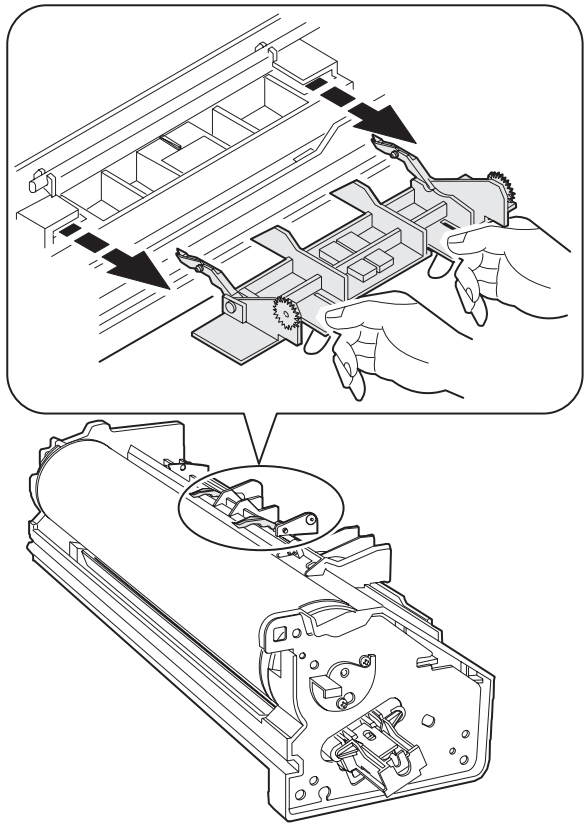


A. OPC drum



∗ After replacing the OPC drum, execute SIM 24-7 to clear the counter. When installing the OPC drum, apply starting powder (UKOG-0088CSZZ).

B. Drum separation pawl

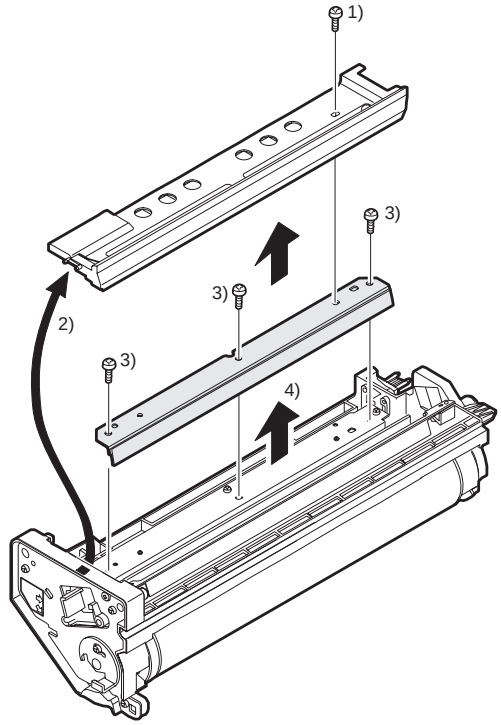


∗ Be careful to clean the pawl lead edge (the contact section with the drum) and keep it from foreign materials.

C. Cleaner blade

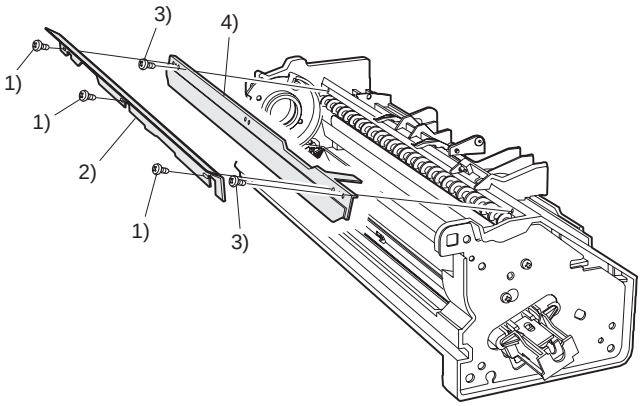
AR-335

Show only one illustration of the AR-335 and specify that the shape of the drum positioning plate is different.



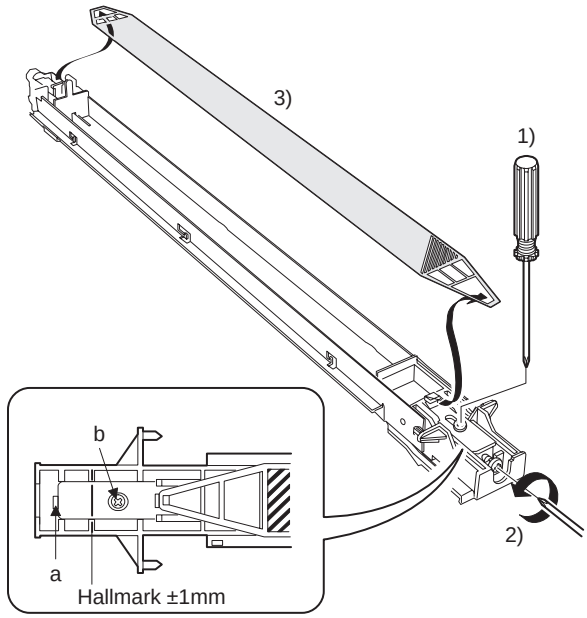
∗ Do not touch the blade and the rubber section. When installing, apply starting powder (UKOG-0088CSZZ).

D. Toner reception seal

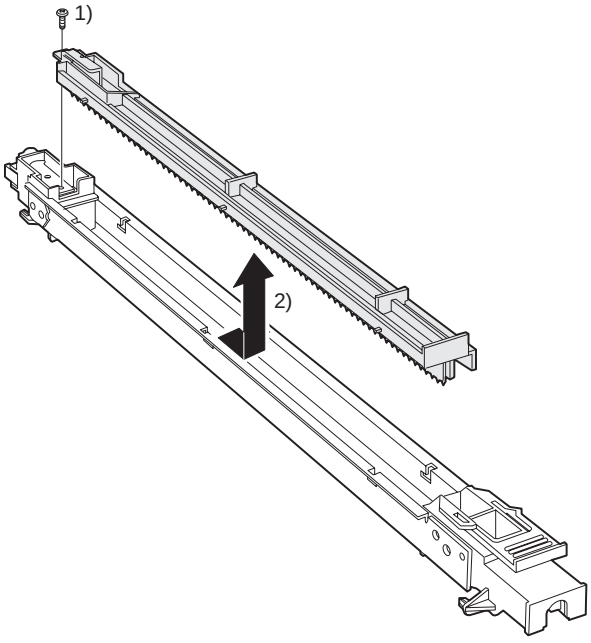


∗ Do not touch the seat section.

E. Main charger



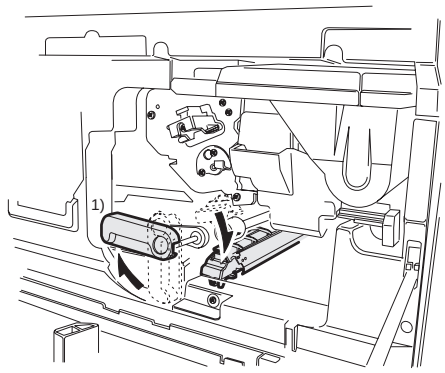
∗ Adjust the screen grid tension so that the marking on the screen holder and the marking on the MC holder come on a same line. Tighten screw a, then tighten screw b.

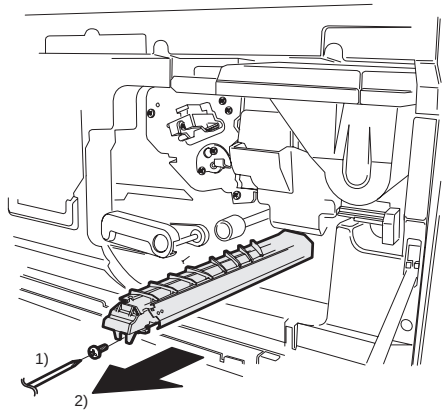


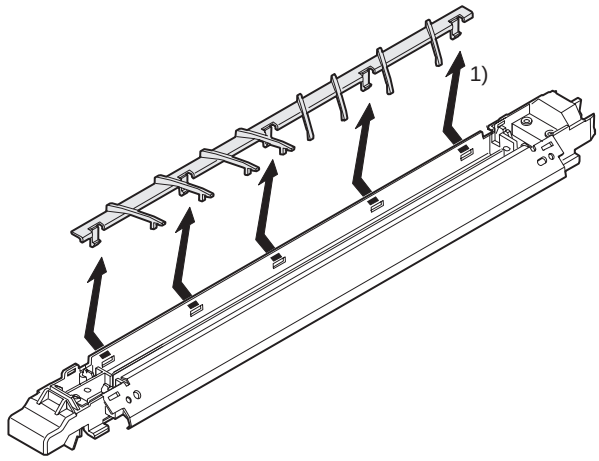
F. Transfer/separation charger

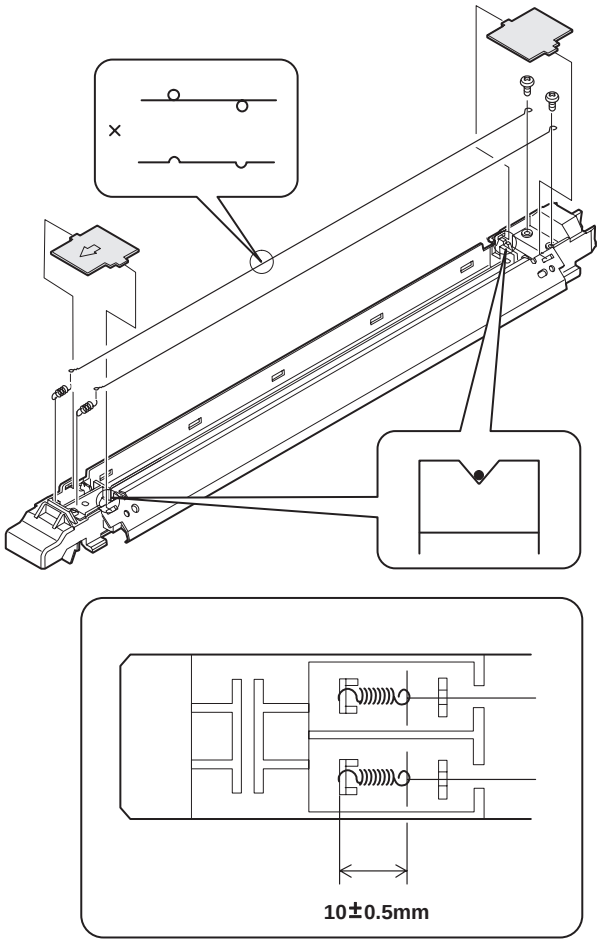
AR-335

Show only one illustration of the AR-335 and specify that the shape of the drum positioning plate is different.







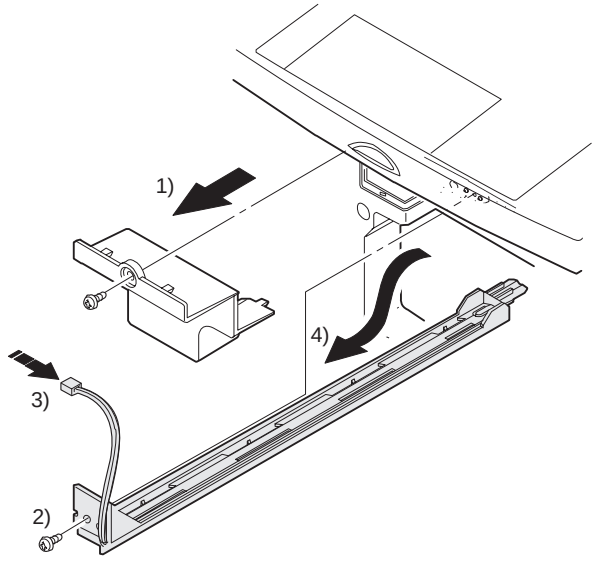


∗ When replacing the charger wire:

- Be careful not to twist or bend the wire.
- Stretch the wire so that the tension spring length is as shown above.
- Securely put the charger wire in the groove.

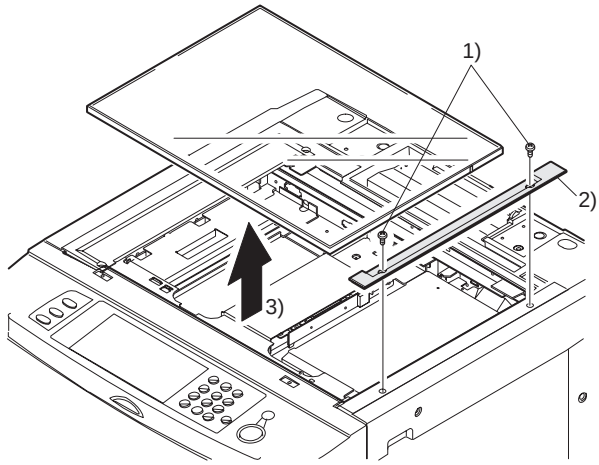
4. Discharge lamp

A. Discharge lamp



5. Scanner unit (Optical system)

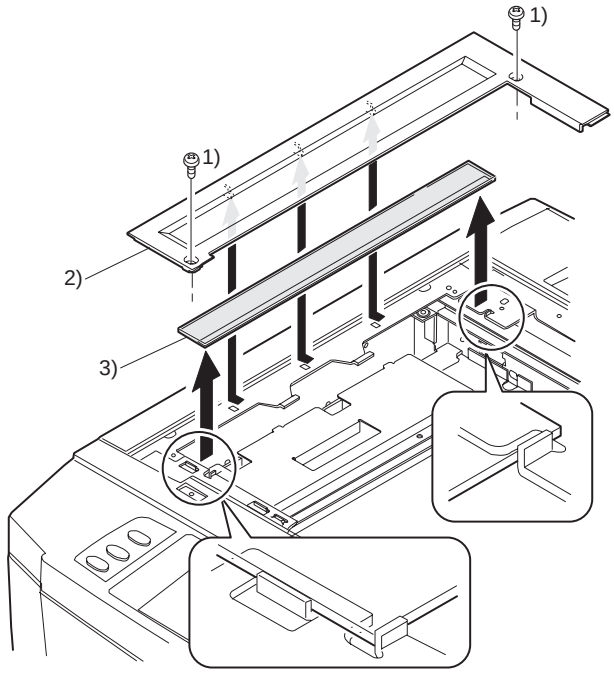
A. Table glass



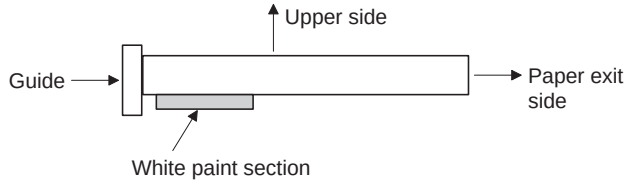
∗ Table glass installing direction

- Install the table glass so that the white marking on the glass is in the paper feed direction rear side.

B. White reference glass (SPF scan glass)



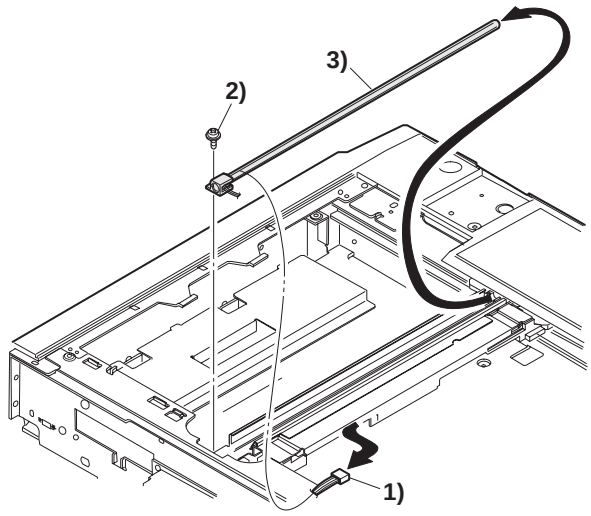
∗ The shape of the glass holder differs depending on the model.



∗ Attach the glass along the guide so that the white pain section of the white reference glass faces downward as shown above.

∗ When handling the white reference glass, be careful not to scratch the white pain section and keep it from dirt or dust.

C. Copy lamp



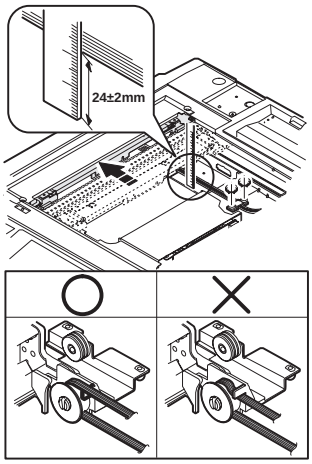
∗ Note for assembling the copy lamp unit

Shift the copy lamp unit to the paper exit side, and fix it with the harness guide so that the distance from the lower frame is about 24 ± 2mm with the copy lamp harness extended.

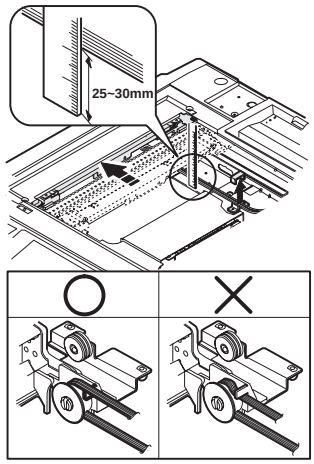
After fixing, manually shift the copy lamp unit a few times to check that it moves smoothly.

If the copy lamp harness is loosely fixed, the copy lamp unit may jump up when reading, resulting in abnormal reading.

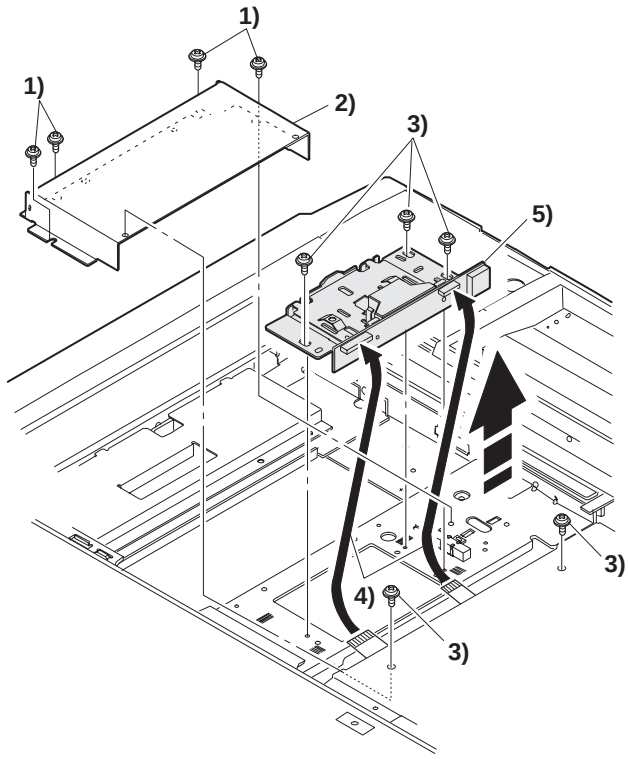
AR-335



AR-405



D. CCD unit

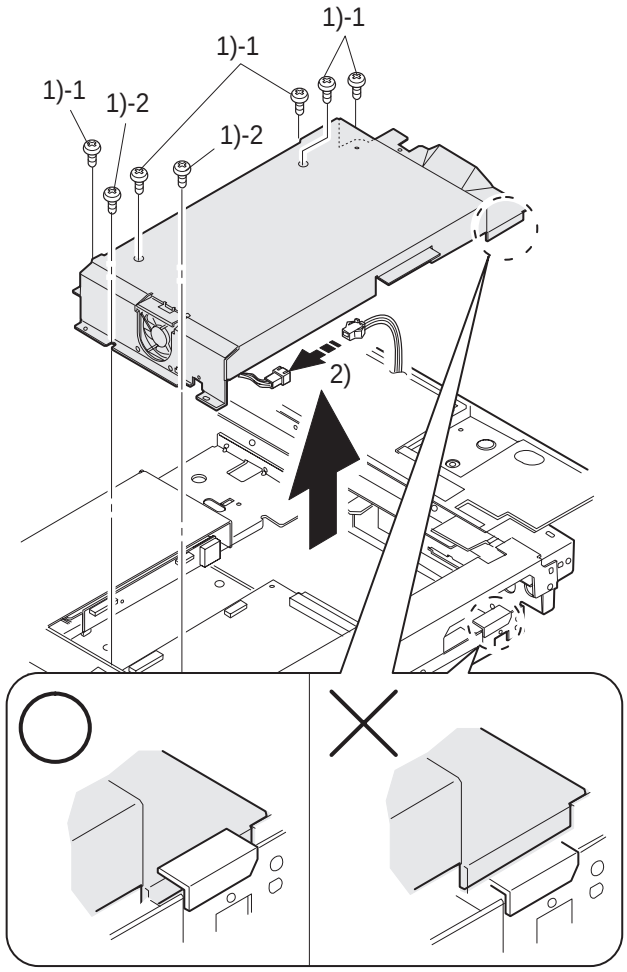


∗ Never loosen the other screws than those which are shown in the above figure.
If loosened, the adjustment cannot be made in the market.

∗ When removing the CCD unit, mark the installing position.

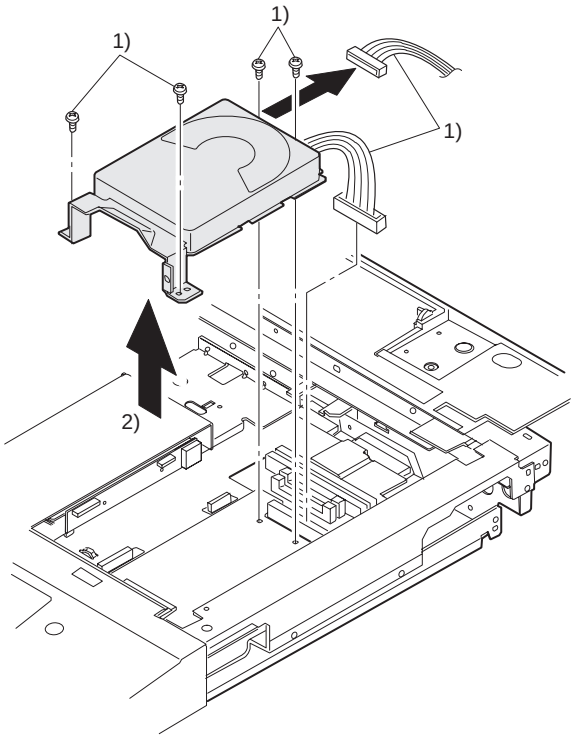
∗ When installing again, perform the main scanning direction magnification ratio adjustment (CCD unit installing position adjustment) described above.

6. ICU peripheral

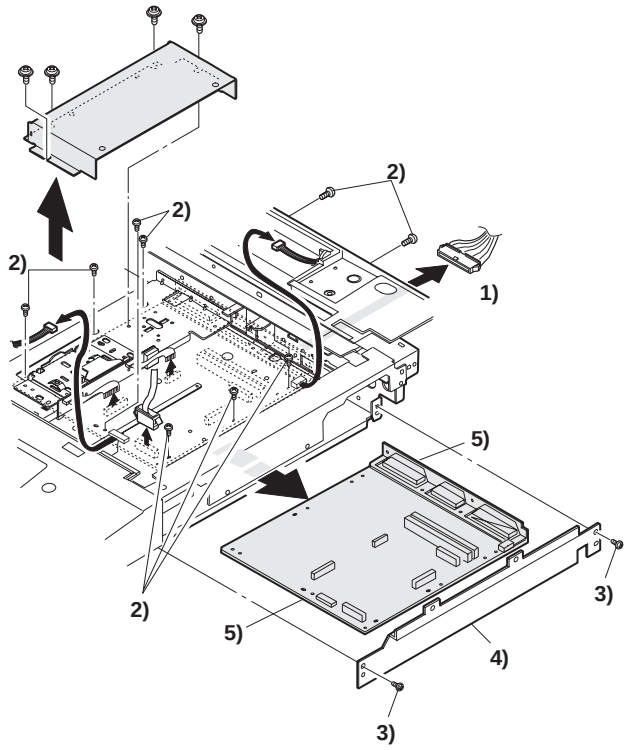


∗ Screw of 1)-1 and that of 1)-2 are different from each other.

A. HD unit

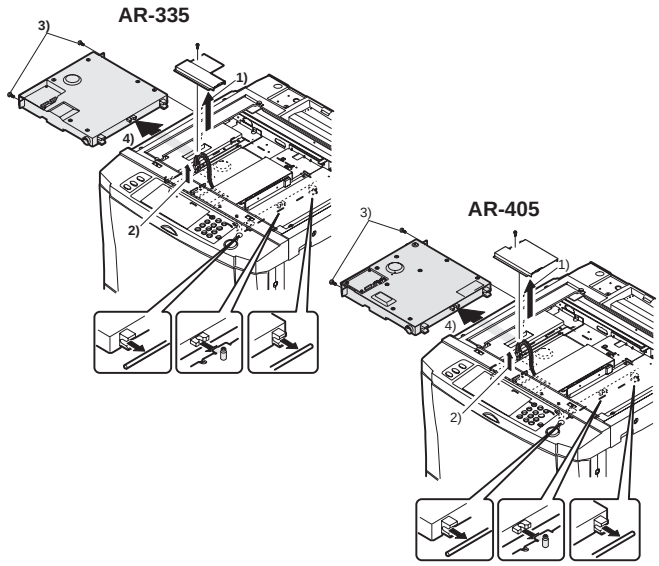


B. ICU PWB



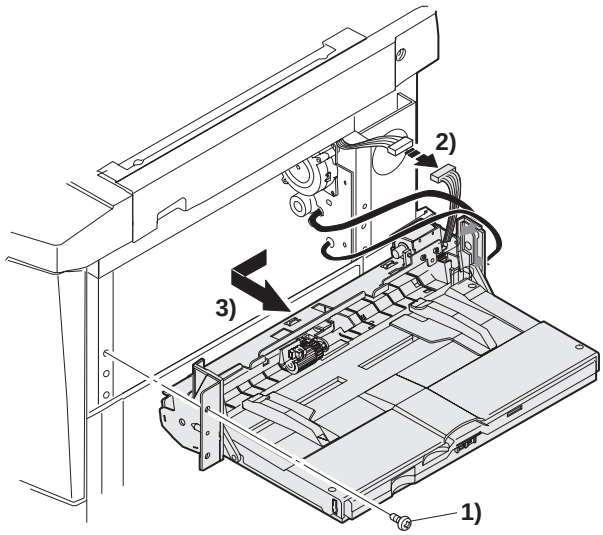
7. Laser unit

∗ Never let the laser beam directly come into your eyes, or you may go blind.

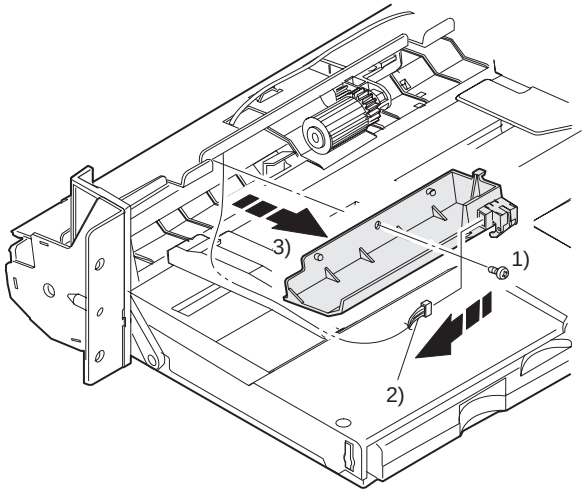


∗ When installing the laser unit, check that the three points a, b, and c are securely in positions. If not, printing errors may occur.

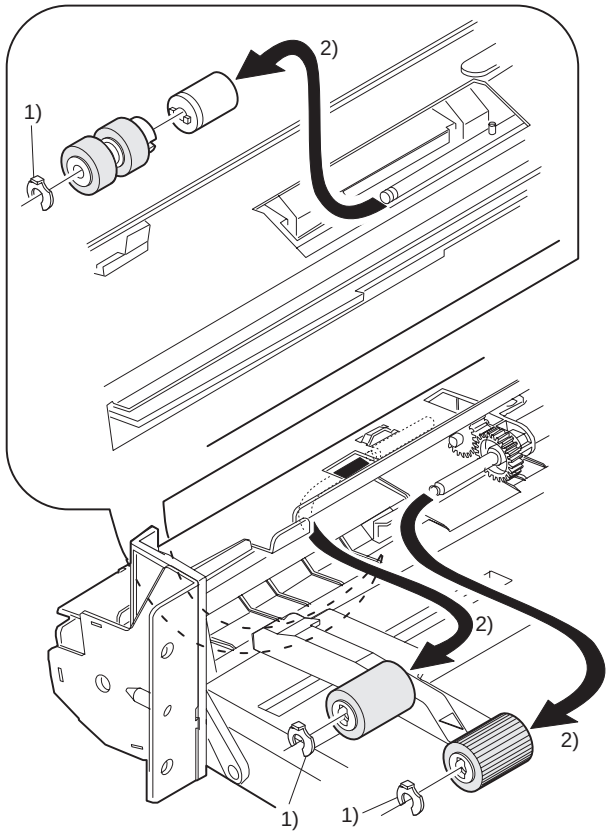
8. Manual feed tray unit



A. Manual feed paper sensor

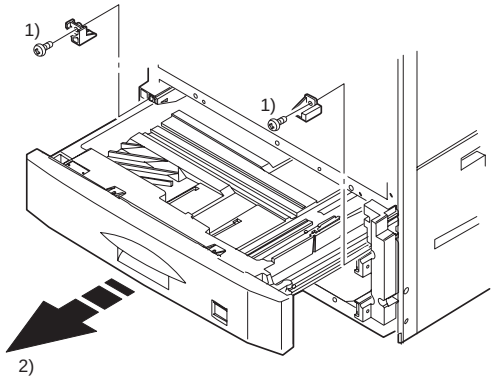


B. Rollers/torque limiters

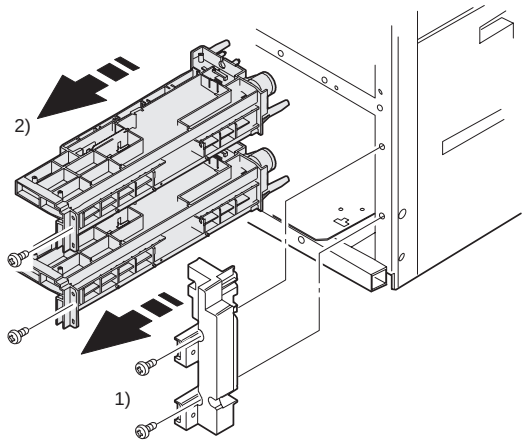


9. 500 tray paper feed unit

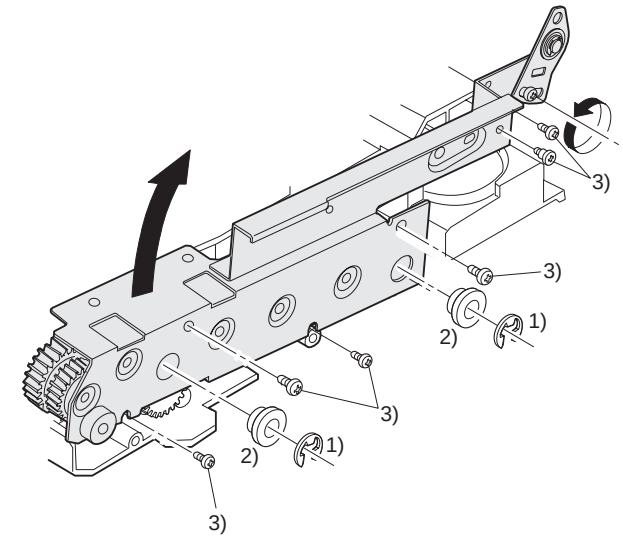
A. Tray unit

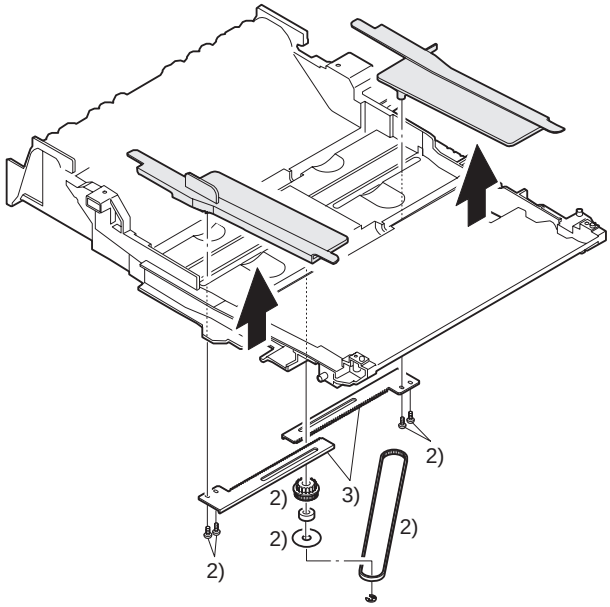


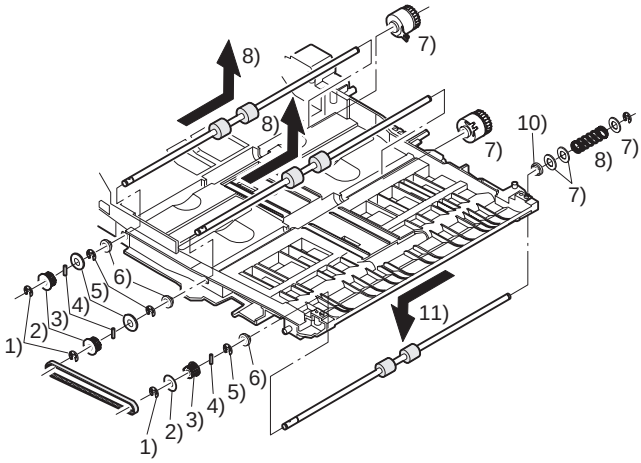
B. Tray paper feed unit



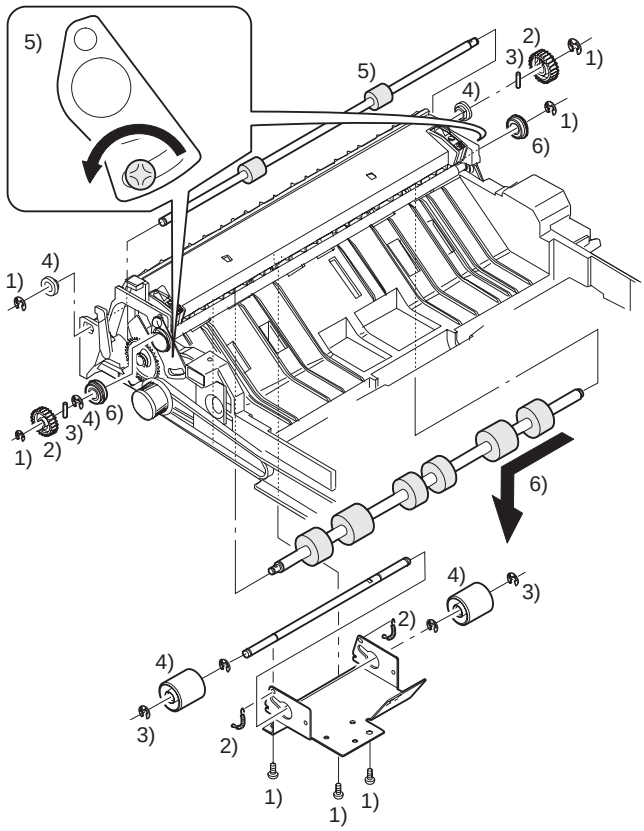
B. Transfer roller





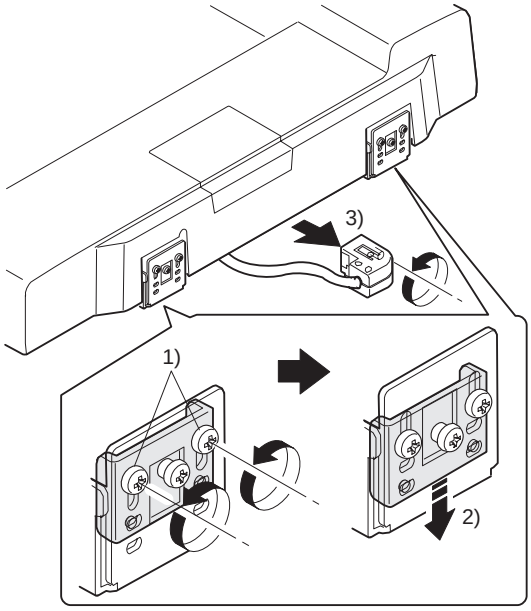


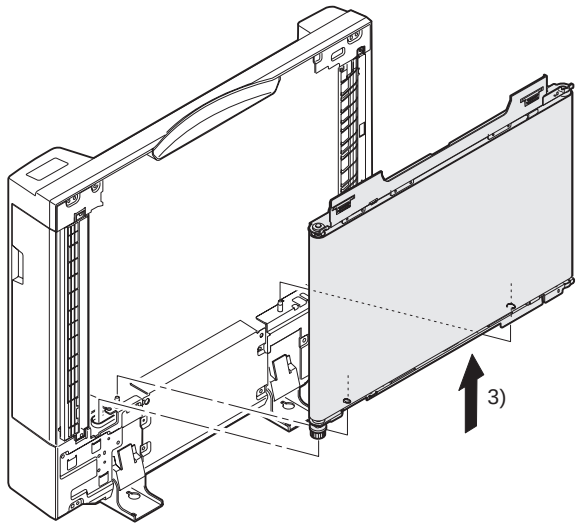
C. Reverse, transfer roller



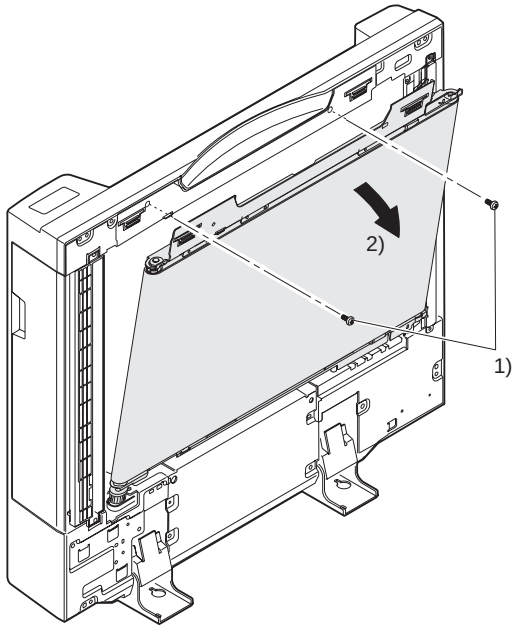
RADF (AR-RF2)

1. Open the transprt section

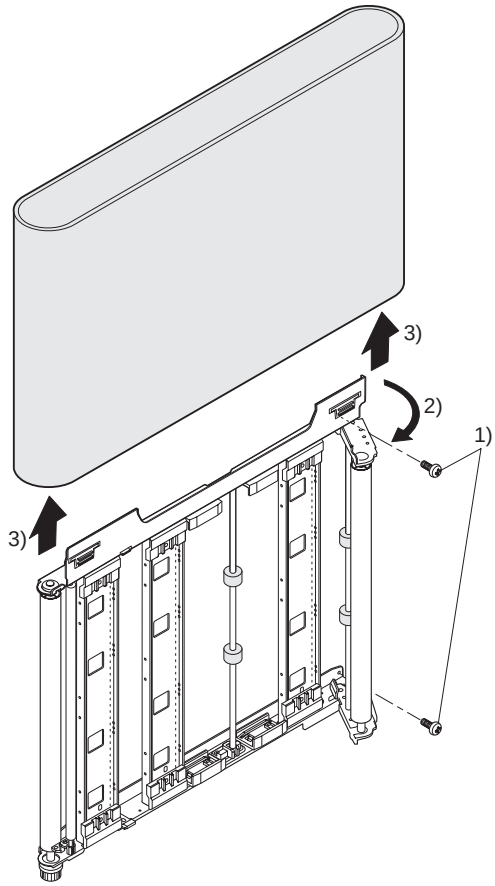




2. Document transport belt unit

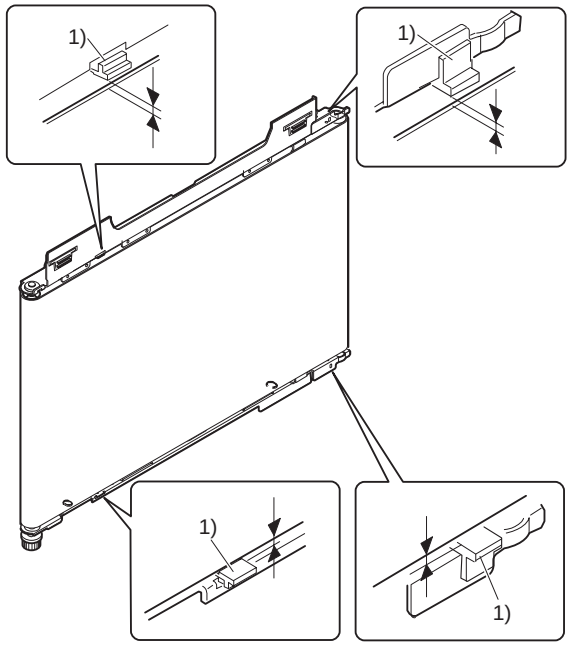


3. Document transport belt replacement

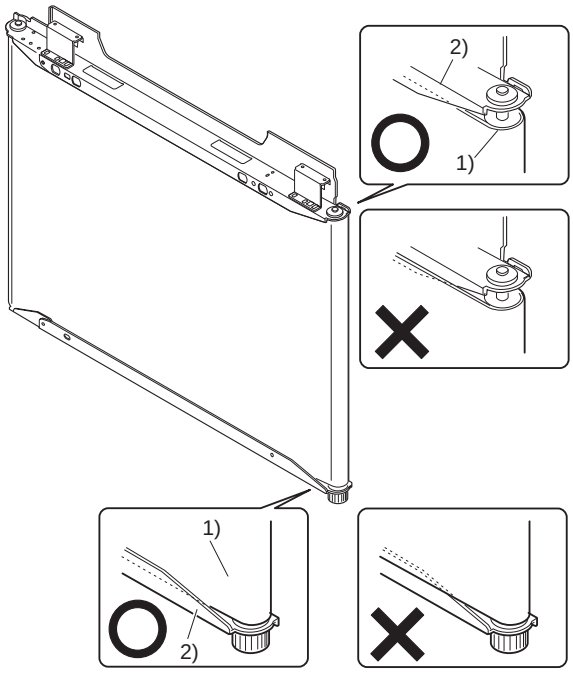


[Note for assembly]

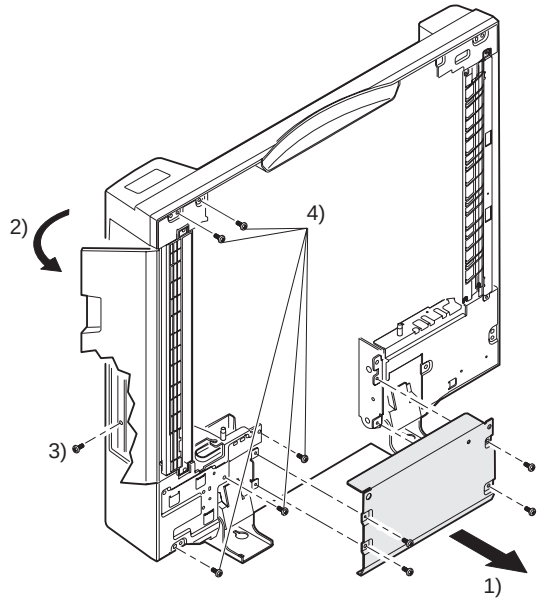
When setting the document transport belt, insert it straight so that the clearance between the spacer 1 and the belt is the same on the front side and on the rear side.

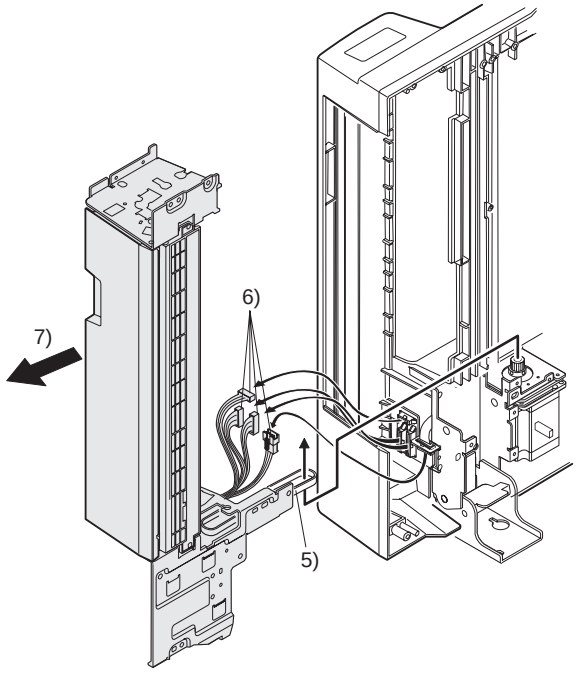


Check that the document transport belt 1) is not on the belt guide 2).

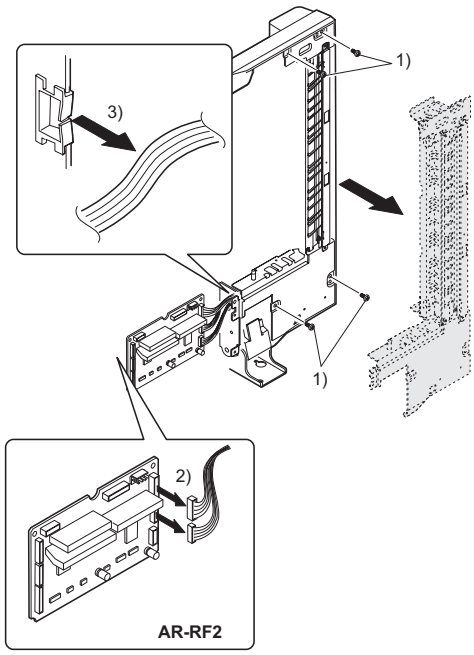


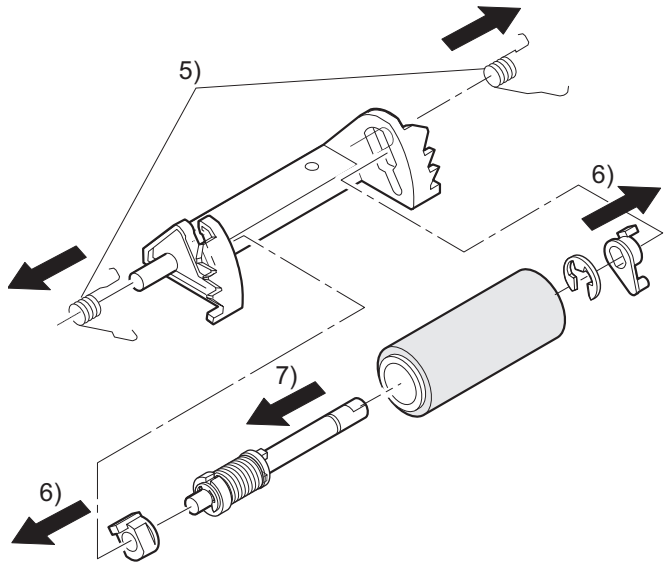
4. Paper feed unit



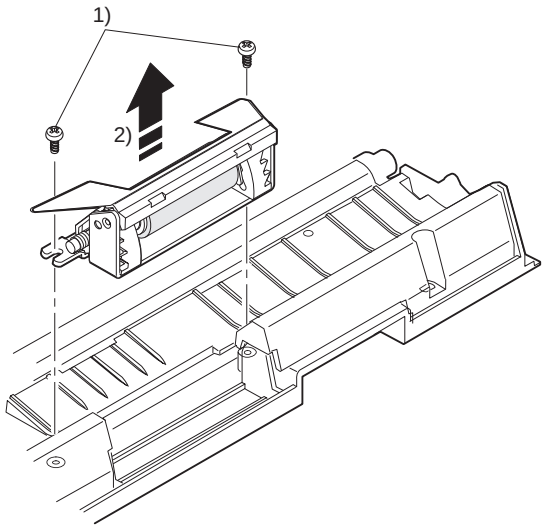


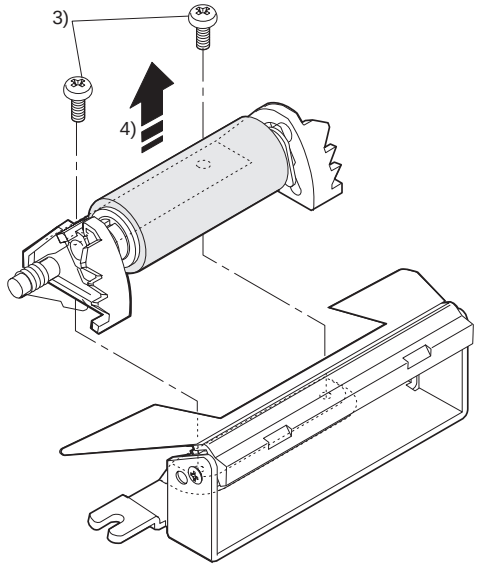
5. Paper exit unit



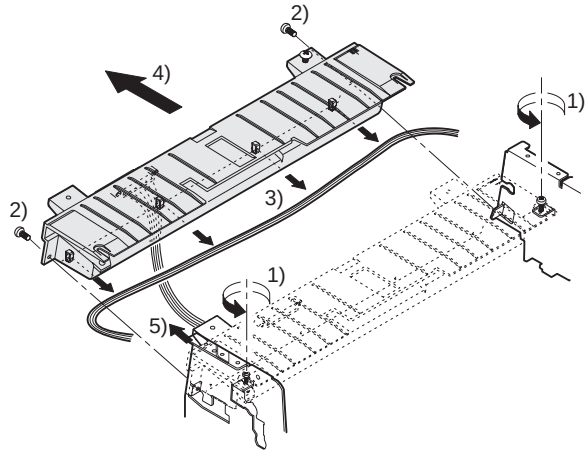


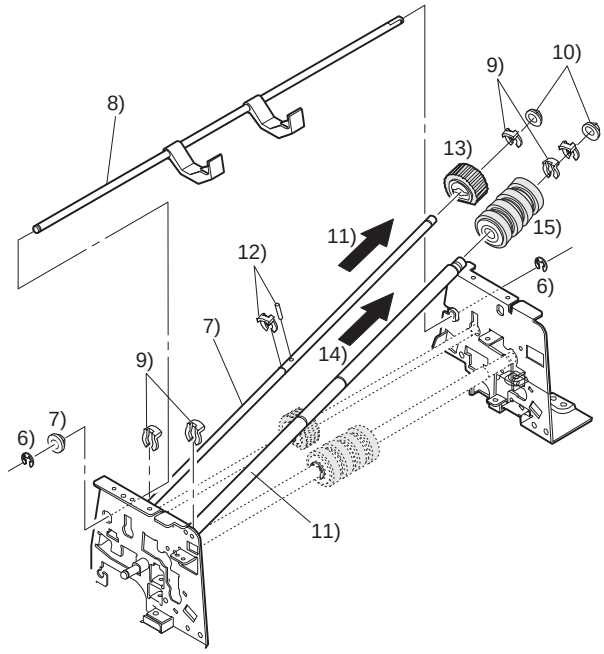
6. Separation roller





7. Semi-circular roller, paper feed roller





[11] TROUBLE CODE LIST

1. Trouble code

Trouble code		Content of trouble	Remark	Trouble detection
C1	00	MC trouble		PCU
C2	00	TC trouble		PCU
E7	00	ICU communication trouble		ICU
	01	Image data memory trouble		ICU
	02	Laser trouble		ICU
	03	HDD trouble		ICU
	10	Shading trouble (Black correction)		ICU
	11	Shading trouble (White correction)		ICU
	13	CCD light quantity check error		ICU
	90	ICU communication trouble		PCU
F1	00	Finisher communication trouble		PCU
	01	Finisher 1 jogger shift trouble / Finisher 2 alignment section abnormality		FIN
	02	Finisher transport motor abnormality		FIN
	04	Finisher 1 elevator lower limit / Finisher 2 stack tray lower limit		FIN
	05	Finisher 1 elevator home / Finisher 2 stack tray sensor abnormality		FIN
	06	Finisher shift motor abnormality		FIN
	08	Finisher staple shift motor trouble		FIN
	10	Finisher staple unit operation trouble		FIN
	11	Finisher 1 pusher motor trouble / Finisher 2 boomerang rotation abnormality		FIN
	14	Finisher 2 stack tray abnormality		FIN
	15	Finisher 1 elevator motor trouble / Finisher 2 stack tray motor lock		FIN
	50	Non-suport trouble in automatic detection of option connection (sorter, finisher)		PCU
	80	Finisher power not supplied		FIN
F2	00	Toner control sensor open		PCU
	02	Toner motor connector unconnected		PCU
	31	Process control trouble (OPC drum surface reflection rate abnormality)		PCU
	32	Process control trouble (Drum marking scanning trouble)		PCU
	37	Drum marking sensor gain adjustment error		PCU
	39	Process thermistor breakdown		PCU
F3	12	Copier top stage CS lift up trouble		PCU
	22	Copier bottom stage CS lift up trouble		PCU
F9	00	Printer communication trouble		ICU
	01	PRT DRAM trouble		PRT
	02	PRT Centroport check error		PRT
	03	Network card trouble		
	04	Printer program error		
	05	Short of memory capacity on the ICU PWB		
	10	PRT SCSI LSI abnormality		ICU
	90	Printer communication trouble		PRT
H2	00	Thermistor open (HL1)		PCU
	01	Thermistor open (HL2)		PCU
H3	00	Heat roller high temperature detection (HL1)		PCU
	01	Heat roller high temperature detection (HL2)		PCU
H4	00	Heat roller low temperature detection (HL1)		PCU
	01	Heat roller low temperature detection (HL2)		PCU
H5	01	5 continuous POD1 not-reaching JAM detection		PCU
	02	Fusing thermistor abnormality		PCU
L1	00	Scanner feed trouble		PCU
L3	00	Scanner return trouble		PCU
L4	01	Main motor lock detection		PCU
L6	10	Polygon motor lock detection		ICU
L8	01	No full-wave signal		PCU
	02	Full-wave signal width abnormality		PCU
U2	00	EEPROM read/write error		ICU
	11	Counter check sum error (EEPROM)		ICU
	12	Adjustment value check sum error (EEPROM)		ICU
U4	02	ADU alignment plate operation abnormality		PCU
	03	ADU rear edge plate operation abnormality		PCU
U5	00	RADF/SPF communication trouble		PCU
	01	RADF resist sensor trouble		RADF
	02	RADF expulsion sensor trouble		RADF
	03	RADF timing sensor trouble		RADF
	11	RADF paper feed motor operation abnormality		RADF
U6	00	Desk communication trouble		PCU
	01	Desk 1 CS lift up trouble		Desk
	02	Desk 2 CS lift up trouble		Desk
	08	Desk 24V power abnormality		Desk
	09	LCC lift motor trouble		LCC
	10	Desk transport motor trouble		Desk
	20	LCC communication trouble		PCU
	21	LCC transport motor trouble		LCC
	22	LCC 24V power abnormality		LCC
	50	Non-suport trouble in automatic detection of option connection (Desk unit)		PCU
	51	Non-suport trouble in automatic detection of option connection (LCC unit)		PCU
U7	00	RIC communication trouble		PCU
U9	00	Operation control communication trouble		ICU
	90	Operation control communication trouble		OPE
EE	EL	Auto developer adjustment trouble (Overtoner)	In SIM only	PCU
	EU	Auto developer adjustment trouble (Undertoner)	In SIM only	PCU
FA	01	A2 board self diag error (memory error)		A2 board
FC	00	ASK/IrDA modulation LSI reset error		
	01	ASK/IrDA switch error		
PC		Personal counter not installed		ICU
PF		RIC copy inhibit command reception		ICU
– –		Auditor not ready		ICU

2. Self diagnostics

Trouble code		Description	
Main code	Sub code		
C1	00	Content	MC trouble
		Detail	Main charger output error (output released) Trouble signal from high-voltage transformer
		Cause	Main charger improperly installed Main charger improperly assembled High-voltage transformer connector removed High-voltage harness removed or wire broken
		Check and remedy	Check main charger output with SIM8-2. Check main charger connector for disconnection. Replace high-voltage unit.
C2	00	Content	TC trouble
		Detail	Transfer charger output error (output short-circuiting) Trouble signal from high-voltage transformer
		Cause	Transfer charger contaminated with foreign matter Transfer charger wire broken High-voltage transformer connector disconnected
		Check and remedy	Check transfer charger output with SIM8-6. Replace high-voltage unit.
E7	00	Content	E7–✱✱: ICU-PCU communication trouble (ICU detection)
		Detail	Communication setup error, framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Connector pin breakage of the motor PWB of the slave unit PWB Slave unit ROM trouble. no ROM, ROM reverse insertion, ROM pin breakage
		Check and remedy	Connect the connector of the slave unit PWB and the ICU PWB. Check the connection and the harness. Check the grounding of the copier. Check the ROM of the slave unit PWB.
	01	Content	Image data memory trouble
		Detail	The ICU image data memory (SIMM) is detected only as 8MB or less. The SIMM capacity is insufficient for the model.
		Cause	The ICU PWB SIMM is not installed. The ICU PWB SIMM does not work properly. The ICU PWB SIMM is not installed properly. ICU PWB abnormality
		Check and remedy	Check installation of the ICU PWB SIMM. Check the SIMM capacity with SIM 22-10. Replace the ICU PWB SIMM.

Trouble code		Description	
Main code	Sub code		
E7	02	Content	Laser trouble
		Detail	BD signal from LSU kept at OFF or ON
		Cause	Connector to LSU or harness inside LSU disconnected or wire broken Polygon motor improperly rotating Laser home position sensor improperly positioned inside LSU Laser power supply line does not have proper voltage Laser LED improperly lighting ICU PWB error
		Check and remedy	Check LSU connector for disconnection. Check LSU operation with SIM61-1. Check polygon motor for rotation. Check laser LED for lighting. Replace LSU unit. Replace ICU PWB.
	03	Content	HDD trouble
		Detail	HDD is not recognized in the model with HDD installed.
		Cause	The HDD is not installed to the ICU PWB. The HDD does not work properly in the ICU PWB. The HDD is not installed to the ICU PWB properly. ICU PWB abnormality
		Check and remedy	Check installation of the HDD to the ICU PWB. Check connection of the HDD harness to the ICU. Replace the HDD. Replace the ICU PWB.
	10	Content	Shading trouble (black correction)
		Detail	Improper CCD black reading level for copy lamp going out
		Cause	Improper installation of flat cable to CCD unit CCD unit error ICU PWB error
		Check and remedy	Check flat cable to CCD unit for installation. Check CCD unit. Check ICU PWB.
	11	Content	Shading trouble (white correction)
		Detail	Improper CCD white reference plate reading level for copy lamp lighting
		Cause	Improper installation of flat cable to CCD unit Mirror, lens or reference white plate contaminated Copy lamp operation error Improperly installed CCD unit CCD unit error ICD PWB error
		Check and remedy	Clean mirror, lens, or reference white plate. Check copy lamp for light amount (SIM5-3) and lighting. Check CCD unit. Check ICU PWB.

Trouble code		Description	
Main code	Sub code		
E7	13	Content	CCD light amount check error
		Detail	Copy lamp light amount adjustment in shading cannot be made
		Cause	Copy lamp does not light (broken wire, improper installation) Improper installation of flat cable to CCD unit Improper connection of copy lamp CL lead wire Mirror, lens, or reference white plate Dirt or dew Improper output of copy lamp power supply Improper installation of CCD unit CCD unit error ICU PWB error
		Check and remedy	Clean mirror, lens, reference white plate. Check copy lamp for light amount (SIM5-3) and lighting. Check CCD unit. Check ICU PWB.
	90	Content	E7–✱✱: ICU-PCU communication trouble (PCU detection)
		Detail	Communication setup error/framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Slave unit PWB mother board connector pin breakage
		Check and remedy	Check the slave unit PWB and the ICU PWB connector connection. Check the copier earth.
F1	00	Content	Finisher communication trouble
		Detail	Communication line test error occurs when power is turned on or after the exit of a simulation mode. Improper communication with sorter
		Cause	Improper connection or broken wire of connector or harness between copier and sorter Finisher control PWB defective Control PWB (PCU) defective Malfunction due to noise
		Check and remedy	Clear by turning the power supply OFF/ON. Check communication line connector and harness. Replace Finisher control PWB or PCU PWB.
	01	Content	Finisher1 jogger shift trouble / Finisher 2 alignment section abnormality
		Detail	Jogger shift trouble / Alignment plate shift trouble
		Cause	Motor lock Motor rpm abnormality Motor overcurrent Finisher control PWB trouble
		Check and remedy	Check the jogger motor operation with SIM 3-3.

Trouble code		Description	
Main code	Sub code		
F1	02	Content	Finisher transport motor error
		Detail	Transport motor drive trouble
		Cause	Motor lock
		Check and remedy	Check transport motor operation with SIM3-3.
	04	Content	Finisher elevator lower limit detection
		Detail	When the bin is shifted, the upper limit or the lower limit sensor is detected. / The elevator exceeds the lower limit.
		Cause	Sensor defective Sorter/finisher control PWB abnormality
		Check and remedy	Check sensor with SIM3-2.
	05	Content	Finisher 1 elevator motor trouble / Finisher 2 stack tray sensor abnormality
		Detail	The elevator does not detect the home position. / Stack tray sensors are turned on in the abnormal combination.
		Cause	Sensor defective Sorter/finisher control PWB abnormality
		Check and remedy	Check sensor with SIM3-2.
	06	Content	Finisher bin shift motor error
		Detail	1) Bin shift is not completed within 2.5 seconds after bin shift request
		Cause	Motor lock Improper motor speed Overcurrent to motor Finisher control PWB defective
		Check and remedy	Check bin shift motor operation with SIM3-4.
	08	Content	Finisher staple shift motor trouble
		Detail	Staple motor drive trouble
		Cause	Motor lock Motor rpm abnormality Overcurrent to motor Finisher control PWB trouble
		Check and remedy	Check the operation of the staple motor with SIM 3-3.
	10	Content	Staple unit operation trouble
		Detail	Staple operation trouble
		Cause	Motor lock Motor rpm abnormality Motor overcurrent Finisher control PWB trouble
		Check and remedy	Check the staple motor operation with SIM 3-3.
	11	Content	Pusher motor trouble / Boomerang rotation abnormality
		Detail	Pusher motor trouble / Paddle solenoid abnormality
		Cause	Motor lock / paddle solenoid operation abnormality / boomerang rotation sensor abnormality Motor rpm abnormality Motor overcurrent Finisher control PWB abnormality
		Check and remedy	Check the finisher motor operation, the paddle solenoid operation with SIM 3-3 or check the boomerang rotation sensor with SIM 3-2.

Trouble code		Description	
Main code	Sub code		
F1	14	Content	Stack tray abnormality
		Detail	Stack tray control sensor abnormality
		Cause	The paper surface sensor and the full stack sensor do not turn on even when a certain time is passed after starting the tray.
		Check and remedy	Check the sensor operation with SIM 3-2.
	15	Content	Finisher elevator motor trouble / Stack tray motor lock
		Detail	Elevator motor trouble
		Cause	Motor lock Motor rpm abnormality Motor overcurrent Finisher control PWB trouble
		Check and remedy	Check the elevator motor operation with SIM 3-3.
	50	Content	Non-support trouble in automatic detection of option connection (Finisher / sorter)
		Detail	In automatic detection of option connection, a non-support finisher or a sorter is detected.
		Cause	A non-support finisher or a sorter is connected to the copier.
		Check and remedy	Check the finisher or the sorter.
	80	Content	Finisher power trouble
		Detail	24V power is not supplied to the finisher PWB.
		Cause	Connector harness improper connection or disconnection Finisher control PWB trouble Power unit trouble
		Check and remedy	Check the sensor operation with SIM 3-2.
F2	00	Content	Toner control sensor open
		Detail	Toner control sensor output open
		Cause	Connector harness trouble Connector unconnected.
		Check and remedy	Check connection of the toner control sensor. Check connection of the connector harness with the main PWB. Check for disconnection of the harness.
	02	Content	Toner motor connector disconnected
		Detail	Connection detection signal with toner motor is OFF
		Cause	Connector harness defective Connector disconnected
		Check and remedy	Check toner motor connector for connection. Check connector harness to main PWB for connection. Check harness for broken wire.

Trouble code		Description	
Main code	Sub code		
F2	31	Content	Process control trouble (OPC base surface reflection factor is improper)
		Detail	Usually the sensor gain is adjusted so that the output is a certain value, by reading the drum base surface with the image density sensor before starting process control. However, a certain output is not obtained by adjusting the sensor gain.
		Cause	Image density sensor defective
		Check and remedy	Check process control sensor output with SIM44-2. (Do not adjust) If the result is far different from the specified value, it suggests the sensor is defective. Check the sensor and harness. If the deviation is relatively small, check the sensor and drum surface for contamination.
	32	Content	Process control trouble (drum marking sensor defective)
		Detail	Usually the sensor gain is adjusted so that the output is a certain value, by reading the drum base surface with the drum marking sensor before starting process control. However, a certain output is not obtained by adjusting the sensor gain.
		Cause	Drum marking sensor defective Improper connection of harness between PCU PWB and drum marking sensor Drum marking sensor contaminated OPC drum cleaning improper Charging voltage improper
		Check and remedy	Check process control output with SIM44-02. (Do not adjust.) If the result is far different from the specified value, it suggests the sensor is defective. Check the sensor and harness. If the deviation is relatively small, check the sensor and drum surface for contamination.
	37	Content	Drum marking sensor gain adjustment error
		Detail	When the drum marking area surface is scanned with the drum marking sensor before starting process control and the sensor gain is adjusted until a constant output is provided, the output is not constant though the sensor gain is changed.
		Cause	Drum marking sensor trouble Improper connection between PCU PWB and drum marking sensor Drum marking sensor is dirty OPC drum cleaning trouble
		Check and remedy	Perform the gain adjustment of process control sensor with SIM 44-2. If ERROR is displayed, it may be a breakdown. Check the sensor and the harness. When the adjustment is completed, check the drum surface conditions.

Trouble code		Description	
Main code	Sub code		
F2	39	Content	Process thermistor breakdown
		Detail	The process thermistor is open.
		Cause	Process thermistor abnormality Improper connection of the process thermistor bar PCU PWB abnormality
		Check and remedy	Check connection of the process thermistor harness and connector. Check the PCU PWB.
F3	12	Content	Upper cassette lift-up trouble
		Detail	UPED does not turn on within the specified time. ULUD does not turn on within the specified time.
		Cause	UPED or ULUD defective Upper cassette lift-up motor defective Improper connection of harness between PCU PWB, lift-up unit, and paper feed unit.
		Check and remedy	Check UPED, ULUD and their harness and connector. Check lift-up unit.
	22	Content	Lower cassette lift-up trouble
		Detail	LPED does not turn on within the specified time. LLUD does not turn on within the specified time.
		Cause	LPED or LLUD defective Lower cassette lift-up motor defective Improper connection of harness between PCU PWB, lift-up unit, and paper feed unit.
		Check and remedy	Check LPED, LLUD, their harnesses and connectors. Check lift-up unit.
F9	00	Content	F9–✱✱: ICU-PRT communication trouble (ICU detection)
		Detail	Communication setup error, framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Connector pin breakage of the motor PWB of the slave unit PWB Slave unit ROM trouble. no ROM, ROM reverse insertion, ROM pin breakage
		Check and remedy	Connect the connector of the slave unit PWB and the ICU PWB. Check the connection and the harness. Check the grounding of the copier. Check the ROM of the slave unit PWB.
	01	Content	PRT DRAM trouble
		Detail	Option printer PWB DRAM trouble (Check when turning on the power.)
		Cause	DRAM module is broken and access cannot be made. DRAM module improper installation
		Check and remedy	Check with SIM 67-1.

Trouble code		Description	
Main code	Sub code		
F9	03	Content	Network card trouble.
		Detail	Network card self test trouble.
		Cause	Network card defecft. Printer PWB defect. Network card connector connection defect.
		Check and remedy	Check the Network card connector. Replace the printer PWB. Replace the Network card.
	04	Content	Printer program error.
		Detail	Program data trouble in the option printer board.
		Cause	Flash memory data is destroied.
		Check and remedy	Replace or rewrite the Flash memory. Replace the printer PWB.
	05	Content	Short of memory capacity on the ICU PWB
		Detail	Total memory is less than 16MB on the ICU PWB.
		Cause	Memory defect SIMM memory connector connection defect ICU PWB defect Wrong type SIMM memory is installed
		Check and remedy	Replace the ICU PWB Replace the memory Check the memory connector
	10	Content	PRT SCSI LSI abnormality
		Detail	An error occurred in SCSI communication with the option printer board.
		Cause	SCSI LSI abnormality ISU PWB abnormality SCSI connector improper connection
		Check and remedy	Replace the printer PWB. Check the SCSI connector. Replace the ISU PWB.
	90	Content	F9–✱✱: ICU-PRT communication trouble (PRT detection)
		Detail	Communication setup error/framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Slave unit PWB mother board connector pin breakage
		Check and remedy	Check the slave unit PWB and the ICU PWB connector connection. Check the copier earth.
H2	00…HL1 01…HL2	Content	Thermister open Fusing unit not installed
		Detail	Thermister is open (more than 4.6-V input voltage is detected). Fusing unit not installed
		Cause	Thermister defective Control PWB defective Improper connection of fusing connector AC power supply defective Fusing unit not installed
		Check and remedy	Check harness and connector between thermister and control PWB. Clear the display of self-diagnostics with SIM14.

Trouble code		Description	
Main code	Sub code		
H3	00…HL1 01…HL2	Content	Too hot fusing section
		Detail	The fusing temperature is over 241.5˚C (less than 1.3-V input voltage is detected.)
		Cause	Thermister defective Control PWB defective Improper connection of fusing unit connector AC power supply defective
		Check and remedy	Check heater lamp operation with SIM5-2. If lamp blinks properly: Check thermister and its harness. Check thermister input circuit of control PWB. If lamp lights and stays lit: Check lamp control circuits of AC PWB and control PWB. Clear the trouble with SIM14.
H4	00…HL1 01…HL2	Content	Too cold fusing section
		Detail	The temperature does not reach the preset value within the specified time (3 min. in usual modes; 5 min. in curl correction mode.) after the power relay is turned on.
		Cause	Thermister defective Heater lamp defective Control PWB defective Thermostat defective AC power supply defective Interlock switch defective
		Check and remedy	Check heater lamp for blinking with SIM5-2. If lamp blinks properly: Check thermister and its harness. Check thermister input circuit of control PWB. If lamp does not light: Check heater lamp for broken wire and thermostat for operation. Check interlock switch. Check lamp control circuit of AC PWB and control PWB. Clear the trouble with SIM14.
H5	01	Content	5 continuous POD1 not-reaching JAM detection
		Detail	5 continuous POD1 not-reaching JAM detection
		Cause	Check that the fusing JAM is completely cancelled. (Jam paper may be remained.) POD1 sensor trouble or improper harness connection Improper installation of the fusing harness.
		Check and remedy	Check JAM paper in the fusing section. (Winding, etc.) Check POD1 sensor harness. Check the fusing unit installation. Cancel the trouble with SIM 14.
	02	Content	Fusing thermistor abnormality
		Detail	Fusing thermistor temperature transient abnormality (Paper winding)
		Cause	Paper winding to fusing roller Fusing pawl abnormality Fusing unit installation abnormality
		Check and remedy	Check for jam (winding) paper in the fusing section. Check for installation of the fusing unit. Check the fusing pawl. Cancel the trouble with SIM 14.

Trouble code		Description	
Main code	Sub code		
L1	00	Content	Scanner field trouble
		Detail	Scanner field is not finished within the specified time. (timer is change by magnification)
		Cause	Mirror unit defective Scanner wire disconnected
		Check and remedy	Check scanning operation with SIM1-1.
L3	00	Content	Scanner return trouble
		Detail	Scanner return is not finished within the specified time. (timer is change by magnification)
		Cause	Mirror unit defective Scanner wire disconnected
		Check and remedy	Check scanning operation with SIM1-1.
L4	01	Content	Main motor lock detected
		Detail	Motor lock signal is detected for 1.5 seconds during main motor rotation
		Cause	Main motor defective Improper connection of harness between PCU PWB and main motor Control circuit defective
		Check and remedy	Check main motor operation with SIM25-1. Check harness and connector between PCU PWB and main motor.
L6	10	Content	Polygon motor lock detected
		Detail	It was judged that there is no output of polygon motor lock signal of LSU. The lock signal was checked at about 10-second intervals after the polygon motor started rotating. As result, it was judged that the polygon motor failed to operate normally.
		Cause	Disconnected connecter to LSU or detached harness inside LSU or broken wire. Polygon motor defective
		Check and remedy	Check polygon motor operation with SIM61-1. Check harness and connector for connection. Replace LSU if needed.
L8	01	Content	No full-wave signal
		Detail	Full-wave signal is not detected.
		Cause	PCU PWB trouble Power unit trouble
		Check and remedy	Check connection of the harness and the connector. Replace the PCU PWB. Replace the power unit.
	02	Content	Full-wave signal abnormality
		Detai	Full-wave signal frequency abnormality detected. (The detected frequency: 69Hz or above or 42.5Hz or below)
		Cause	Check for disconnection or improper connection of the connector of the PCU PWB and the power PWB harness. PCU PWB trouble Power unit trouble
		Check and remedy	Check connection of the harness and connector. Replace the power unit.

Trouble code		Description	
Main code	Sub code		
U2	00	Content	EEPROM read/write error
		Detail	EEPROM version error. Error in writing into EEPROM.
		Cause	EEPROM defective Uninitialized EEPROM is installed Defective EEPROM access circuit on PCU PWB
		Check and remedy	Check EEPROM for proper set-up To prevent the erasure of counter data and adjustment values, write down the counter data and adjustment values by simulation. (If there is a printer option, execute SIM23-1 and note counter data/adjustment values.) Clear U2 trouble with SIM16. Replace PCU PWB.
	11	Content	Counter checksum error
		Detail	Checksum error in counter data area
		Cause	EEPROM defective Control circuit hung up due to noise Defective EEPROM access circuit on PCU PWB
		Check and remedy	Check EEPROM for proper set-up To prevent the erasure of counter data and adjustment values, write down the counter data and adjustment values by simulation. (If there is a printer option, execute SIM23-1 and note counter data/adjustment values.) Clear U2 trouble with SIM16. Replace PCU PWB.
	12	Content	Adjustment value checksum error
		Detail	Checksum error in adjustment value data area
		Cause	EEPROM defective Control circuit hung up due to noise. Defective EEPROM access circuit on PCU PWB
		Check and remedy	Check EEPROM for proper set-up To prevent the erasure of counter data and adjustment values, write down the counter data and adjustment values by simulation. (If there is a printer option, execute SIM23-1 and note counter data/adjustment values.) Clear U2 trouble with SIM16. Replace PCU PWB.
U4	02	Content	ADU alignment plate operation error
		Detail	The plate won't move from home position more than 1 second after sending the command to leave home position. Or the plate won't return to home position within 5 seconds after sending the command to return to home position.
		Cause	Home position sensor defective Alignment shift motor defective Improper connection of harness between PCU PWB, motor and sensor. Control PWB (PCU) defective Alignment plate driving belt or gear damaged or improperly adjusted
		Check and remedy	Check home position sensor detection with SIM9-2. Check alignment plate operation with SIM9-4. Check connection between PCU, motor and sensor. Remove ADU and check gear and belt for damage.

Trouble code		Description	
Main code	Sub code		
U4	03	Content	ADU rear edge plate operation abnormality
		Detail	When the plate is not shifted from the home position for 1 sec or more or when returning to the home position is not detected for 5 sec or more.
		Cause	Home position sensor defect Rear edge plate shift motor defect Control PWB (PCU) defect Rear edge plate operation belt/gear damage or adjustment error
		Check and remedy	Check the home position sensor operation with SIM 9-21. Check the rear edge plate operation with SIM 9-31. Check between the PCU PWB, the motor, and the sensor. Remove the ADU and check the gear and the belt.
	03	Content	ADU rear plate operation abnormality
		Detail	The ADU rear plate is not shifted from the home position for more than 1 sec, or returning to the home position is not detected for 5 sec when the plate is returned to the home position.
		Cause	Home position sensor abnormality Rear plate shift motor abnormality Control PWB (PCU) abnormality Rear plate belt, gear breakage or improper adjustment
		Check and remedy	Check the operation of the home position sensor with SIM 9-2. Check the rear plate operation with SIM 9-3. Check between the PCU PWB, the motor, and the sensor. Remove the ADU and check the gear and the belt for breakage.
U5	00	Content	RADF/SPF communication trouble
		Detail	Communication line test error occurs when power is turned on or after the exit of a simulation mode. Improper communication with RADF
		Cause	Improper connection or broken wire of connector or harness RADF control PWB defective Control PWB (PCU) defective Malfunction due to noise
		Check and remedy	Check communication line connector and harness. Clear the trouble by turning power supply On/Off.
	01	Content	RADF resist sensor defective
		Detail	RADF resist sensor detection trouble
		Cause	Sensor defective Improper connection of sensor harness inside RADF. RADF control PWB defective
		Check and remedy	Check resist sensor detection with SIM2-2. Check sensor harness inside RADF.

Trouble code		Description	
Main code	Sub code		
U5	02	Content	RADF eject/inversion sensor defective
		Detail	RADF eject/inversion sensor detection trouble
		Cause	Defective sensor Improper connection of sensor harness inside RADF. RADF control PWB defective
		Check and remedy	Check eject/inversion sensor detection with SIM2-2. Check sensor harness inside RADF.
	03	Content	RADF timing sensor defective
		Detail	RADF timing sensor detection trouble
		Cause	Defective sensor Improper connection of sensor harness inside RADF RADF control PWB defective
		Check and remedy	Check timing sensor detection with SIM2-2. Check sensor harness inside RADF.
	11	Content	Paper feed motor operation error
		Detail	Paper feed motor driving error
		Cause	Motor lock Improper motor speed Overcurrent to motor RADF control PWB defective
		Check and remedy	Check paper feed motor operation with SIM2-3,4.
U6	00	Content	Desk communication trouble
		Detail	Failed communication with desk Communication line test error occurs when power is turned on or after the exit of a simulation mode.
		Cause	Improper connection or broken wire of connector or harness Desk control PWB defective Control PWB (PCU) defective Malfunction due to noise.
		Check and remedy	Clear the trouble by turning the power supply On/Off. Check communication line connector and harness.
	01 ~ 02	Content	Desk 1, 2 CS lift-up trouble
		Detail	Desk cassette lift-up trouble (1st - 3rd cassettes).
		Cause	Defective sensor RADF control PWB defective Broken gear Lift-up motor defective
		Check and remedy	Check lift-up sensor detection with SIM4-2. Check lift-up motor with SIM4-3.
	08	Content	Desk 24-V power supply error
		Detail	No supply of DC24V to desk
		Cause	Improper connection or broken wire of connector or harness Desk control PWB defective Power supply unit defective
		Check and remedy	Check power supply line connector and harness. Check 24-V voltage on power supply unit and desk control PWB.

Trouble code		Description	
Main code	Sub code		
U6	09	Content	LCC lift motor trouble
		Detail	LCC lift motor trouble
		Cause	Sensor trouble LCC control PWB trouble Gear breakage Lift motor trouble
		Check and remedy	Check the sensor detection with SIM 4-2. Check the lift motor operation with SIM 4-3.
	10	Content	Desk transport motor trouble
		Detail	Desk transport motor operation trouble
		Cause	Motor lock Improper motor speed Overcurrent to motor RADF control PWB defective
		Check and remedy	Check transport motor operation with SIM4-6.
	20	Content	LCC communication trouble
		Detail	LCC communication trouble Error when power is turned on or in communication line test after exiting SIM.
		Cause	Connector harness improper connection or disconnection LCC control PWB trouble Control PWB (PCU) trouble Malfunction by noise
		Check and remedy	Canceled by turning on the power. Check the connector and harness of the communication line.
	21	Content	LCC transport motor trouble
		Detail	LCC transport motor operation trouble
		Cause	Motor lock Motor rpm abnormality Motor overcurrent LCC control PWB trouble
		Check and remedy	Check the transport motor operation with SIM 4-3.
	22	Content	LCC 24V power abnormality
		Detail	DC24V not supplied to LCC
		Cause	Connector harness improper connection or disconnection LCC control PWB trouble Power unit trouble
		Check and remedy	Check the connector and harness of power line. Check 24V power in the power unit and the LCC control PWB.
	50	Content	Non-support trouble in automatic detection of option connection (Desk unit)
		Detail	In automatic detection of option connection, a non-support desk unit is detected.
		Cause	A non-support desk unit is connected to the copier.
		Check and remedy	Check the desk unit.

Trouble code		Description	
Main code	Sub code		
U6	51	Content	Non-support trouble in automatic detection of option connection (LCC unit)
		Detail	In automatic detection of option connection, a non-support LCC unit is detected.
		Cause	A non-support LCC unit is connected to the copier.
		Check and remedy	Check the LCC unit.
U7	00	Content	RIC communication trouble
		Detail	Communication error with RIC Error in communication line test after turning on the power or exiting from SIM.
		Cause	Improper connection or disconnection of connector and harness RIC control PWB trouble Control PWB (ICU) trouble Malfunction caused by noises
		Check and remedy	Turn off/on the power to cancel the trouble.
U9	00	Content	U9–✱✱: ICU-OPE communication trouble (ICU detection)
		Detail	Communication setup error, framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Connector pin breakage of the motor PWB of the slave unit PWB Slave unit ROM trouble. no ROM, ROM reverse insertion, ROM pin breakage
		Check and remedy	Connect the connector of the slave unit PWB and the ICU PWB. Check the connection and the harness. Check the grounding of the copier. Check the ROM of the slave unit PWB.
	90	Content	U9–✱✱: ICU-OPE communication trouble (OPE detection)
		Detail	Communication setup error/framing/parity/protocol error
		Cause	Slave unit PWB connector improper connection Slave unit PWB – ICU PWB harness trouble Slave unit PWB mother board connector pin breakage
		Check and remedy	Check the slave unit PWB and the ICU PWB connector connection. Check the copier earth.

Trouble code		Description	
Main code	Sub code		
EE	EL	Content	Auto developing tone adjustment trouble (overtoner error)
		Detail	A sample data is less than 0 when auto developing adjustment is executed.
		Cause	Toner density sensor defective Charging voltage or developing voltage improper. Toner density improper Developing unit defective PCU PWB defective
		Check and remedy	Make auto developing adjustment with SIM25-2.
	EU	Content	Auto developing adjustment trouble (undertoner error)
		Detail	A sample data is less than 99 when auto developing adjustment is executed.
		Cause	Toner density sensor defective Charging voltage or developing voltage improper Toner density improper Unit defective PCU PWB defective
		Check and remedy	Make auto developing adjustment with SIM25-2.
FC	00	Content	ASK/IrDA modulation LSI reset error
		Detail	Though the RESET signal pulse is sent to the ASK/IrDA modulation LSI, the power signal is not turned ON.
		Cause	1) ICU main PWB defect 2) ASK/IrDA modulation LSI/Clock oscillator defect
		Check and remedy	Perform the self diag with SIM 68-01. Replace the ICU main PWB.
	01	Content	ASK/IrDA switch error
		Detail	Though the ASK/IrDA switch command is sent to the ASK/IrDA modulation LSI, the AI signal is not changed.
		Cause	1) ICU main PWB defect 2) ASK/IrDA modulation LSI/Clock oscillator defect
		Check and remedy	Perform the self diag with SIM 68-01. Replace the ICU main PWB.
PF	00	Content	RIC copy inhibition signal received
		Detail	Copy inhibition command received from RIC (host)
		Cause	Judged by the host.
		Check and remedy	Notice to the host
FA	01	Content	A2 board self diag error (memory error)
		Detail	The memory error notice is received from the A2 board.
		Cause	A memory error occurred on the A2 board.
		Check and remedy	Check the details of the error with SIM 69-02. Replace the A2 board.

[12] OPERATIONAL DESCRIPTION

Correcting operation in the image forming section (Process correction operation)

1. Outline and purpose

The operations of the image forming section are corrected in order to maintain stable and high-quality print even though any changes occur in the temperature, humidity, consumable parts characteristics, engine conditions, or other environmental conditions.

In concrete, the correction is performed by controlling various control parameters related to the image forming section (process) operations.

With the above correction operations, stable print quality is always provided, reducing service calls and service works.

2. Image forming section correction operation (Process correction operation)

There are following items of the image forming section correction operations (process correction operations).

a. List

Image forming section correction operations (process correction operations) list

Item No.	Correction operations	Purpose, effect	Execution conditions, operating timing
1	Image density sensor sensitivity correction (Calibration) (Gain adjustment)	Allows the image density sensor to always detect the correct image patch density.	Before process correction operation
2	OPC drum marking sensor sensitivity correction	Allows the OPC drum marking sensor to always detect the OPC drum marking normally.	∗ 1
3	Developing bias voltage correction	Prevents against density change and background copy.	∗ 1
4	Laser beam power correction 1	Prevent against a decrease in print density due to OPC drum membrane decrease.	Specified rotating time of the OPC drum (Every 20,000 sec)
	Laser beam power correction 2	Outputs the laser beam power corresponding to the main charger grid voltage (to maintain the constant voltage).	Immediately after correction of the main charger grid voltage (∗1)
5	Main charger grid voltage correction 1	Corrects a decrease in the charging voltage due to the OPC drum membrane decrease, maintains the correct density of print and prevent against background copy.	Specified rotating time of the OPC drum (Every 20,000 sec)
	Main charger grid voltage correction 2	Maintains the relations between the developing bias voltage and the main charger grid voltage at constant (to prevent against background copy).	Immediately after correction of the developing bias voltage (∗1)
6	Toner concentration correction	Maintains the normal toner concentration to maintain the proper density of print and prevent against background copy.	When the developing bias voltage correction is performed for the voltage higher than the specified level is made immediately after the developing bias voltage correction. (∗1)

∗ 1 During warm-up after turning on the power.
During warm-up after cancelling SIM 7-1, 24-7, 25-2, 44-2.
After completion of printing when the accumulated print time reaches 30 min from the previous correction.
When the next print is made when non-print status continues one hour.

3. Details

A. Operating conditions and timing of the image forming section correction operation (Process correction operation)

The image forming section correction operation (process correction operation) is performed under the following conditions and timing.

1) During warm-up after turning on the power.
2) During warm-up after cancelling SIM 7-1, 24-7, 25-2, 44-2.
3) After completion of printing when the accumulated print time reaches 30 min from the previous correction.
4) When the next print is made when non-print status continues one hour.

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

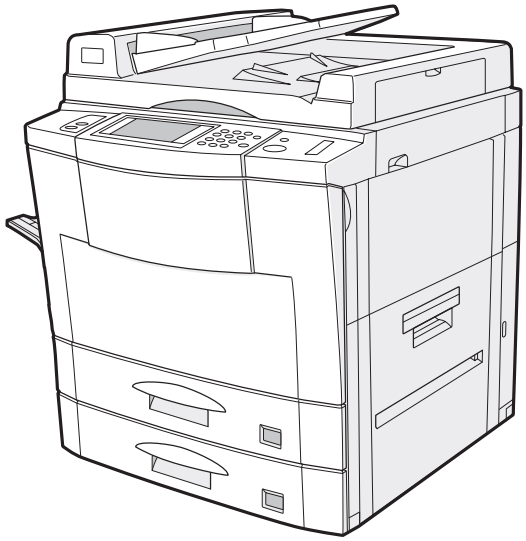
(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

SHARP

SHARP CORPORATION
Printing & Reprographic Systems Group
Quality & Reliability Control Center
Yamatokoriyama, Nara 639-1186, Japan
1999 January Printed in Japan

SHARP CIRCUIT DIAGRAM

CODE: 00ZAR405//C1E



Digital Copier

MODEL AR-405

CONTENTS

Parts marked with "⚠" is important for maintaining the safety of the set. Be sure to replace these parts with specified ones for maintaining the safety and performance of the set.

SHARP CORPORATION

[1] Wiring Chart

WIRING CHART

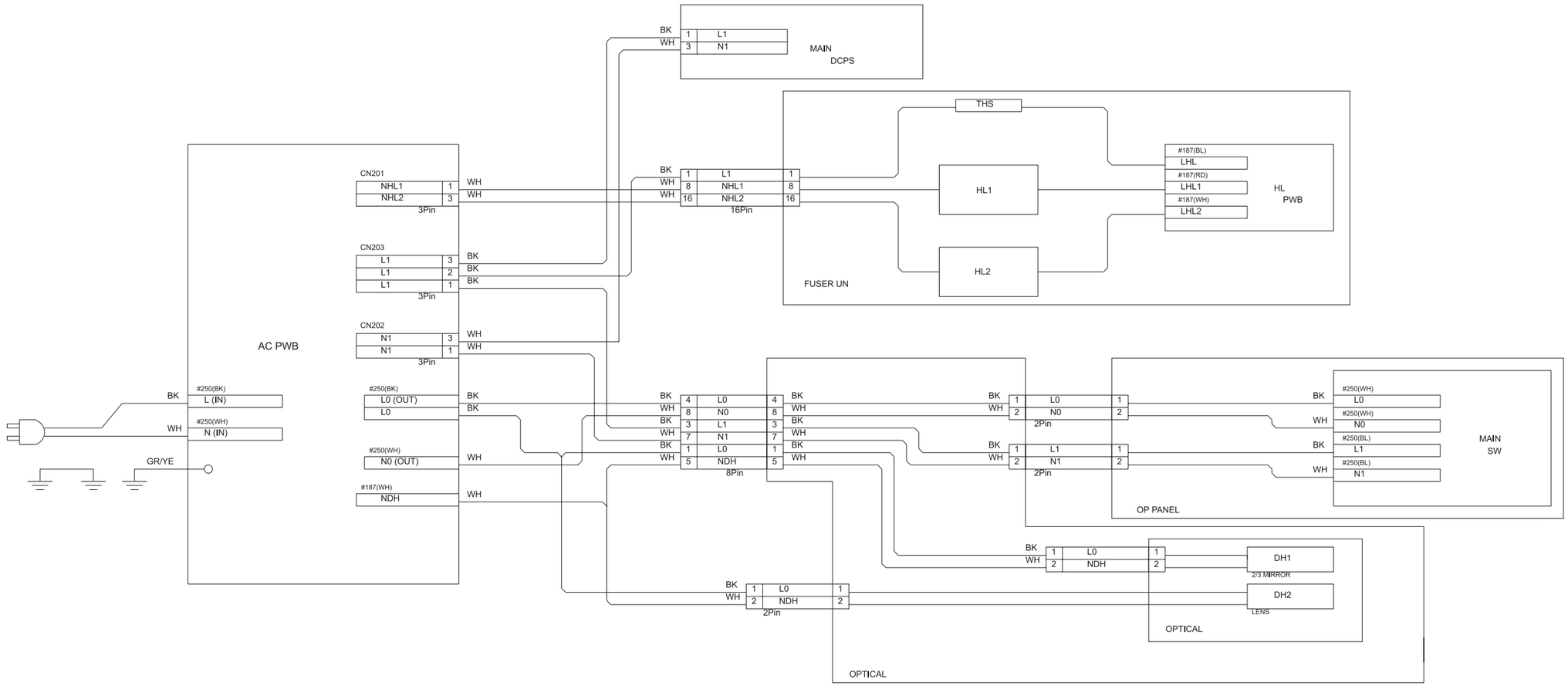
1/2

WIRING CHART

2/2

AC POWER SECTION (100V series)

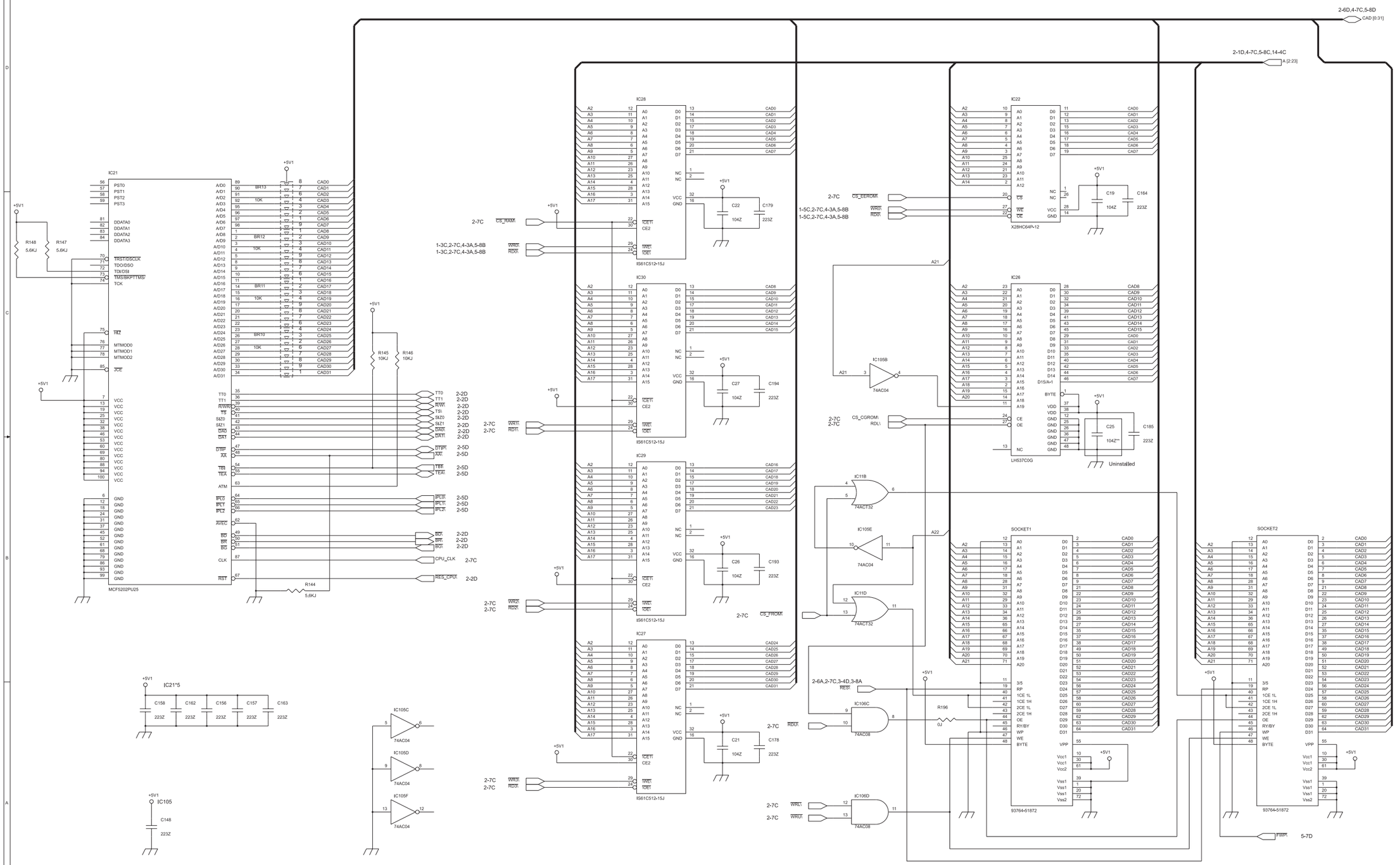
1/1



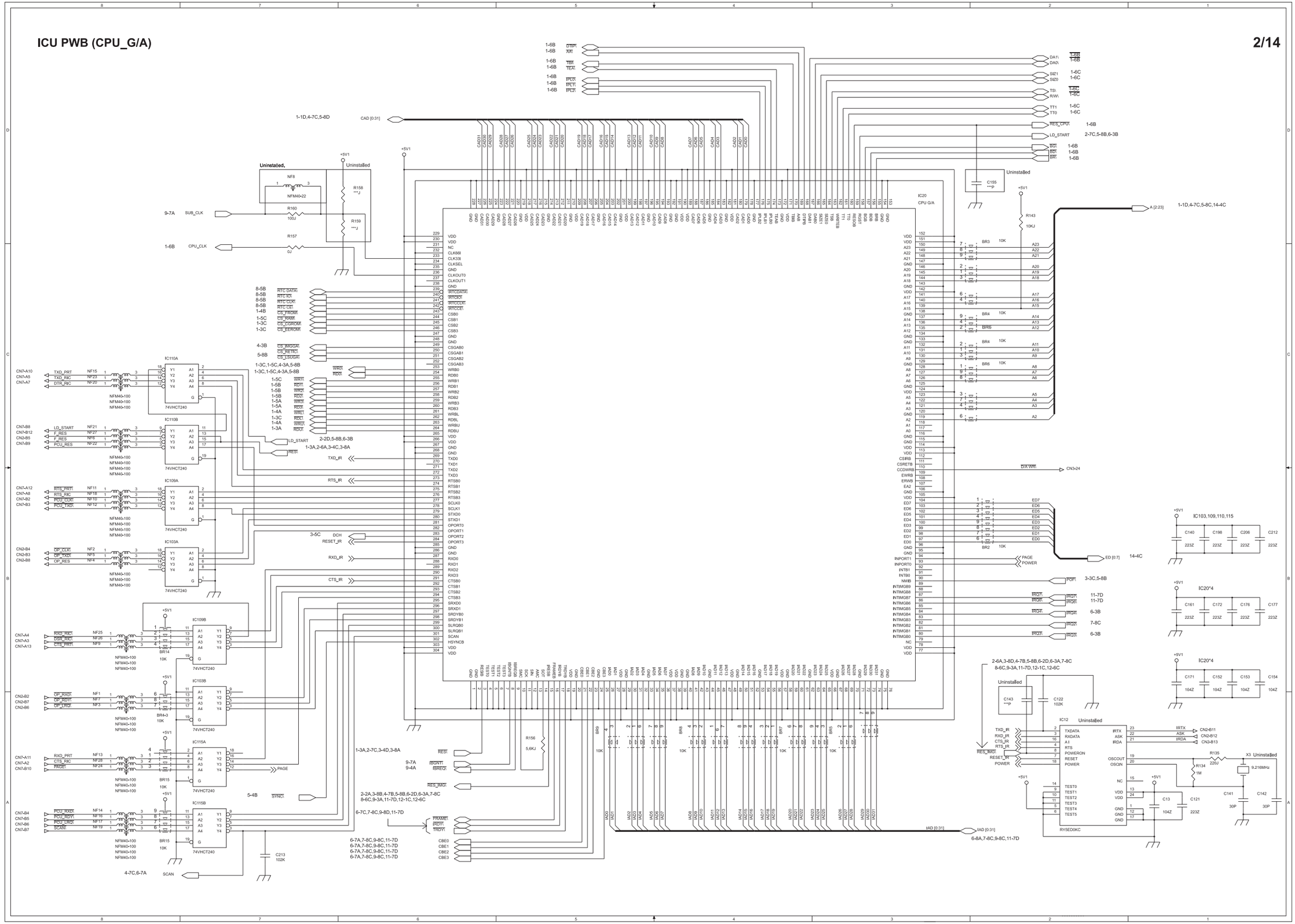
[2] ICU PWB

ICU PWB (CPU)

1/14

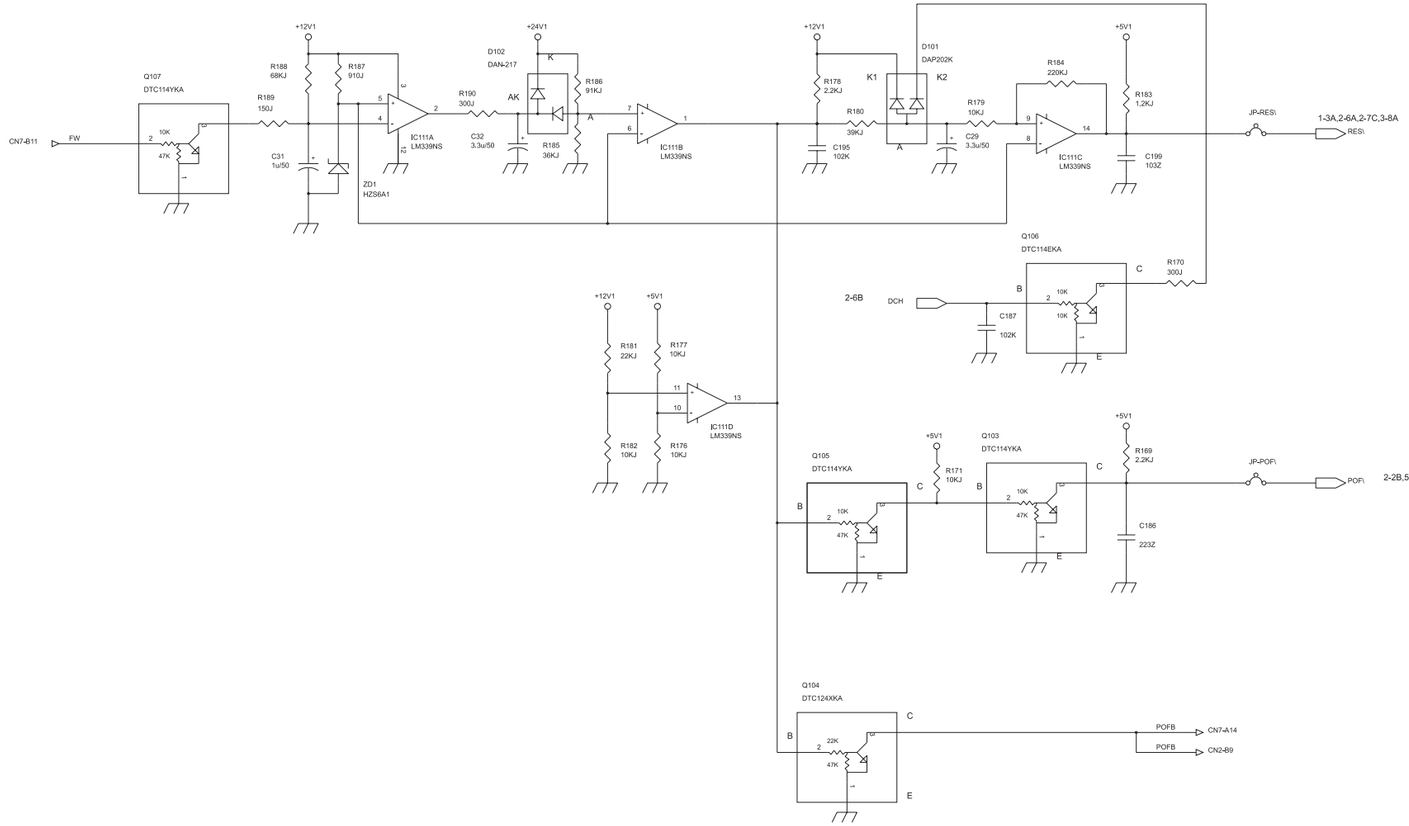


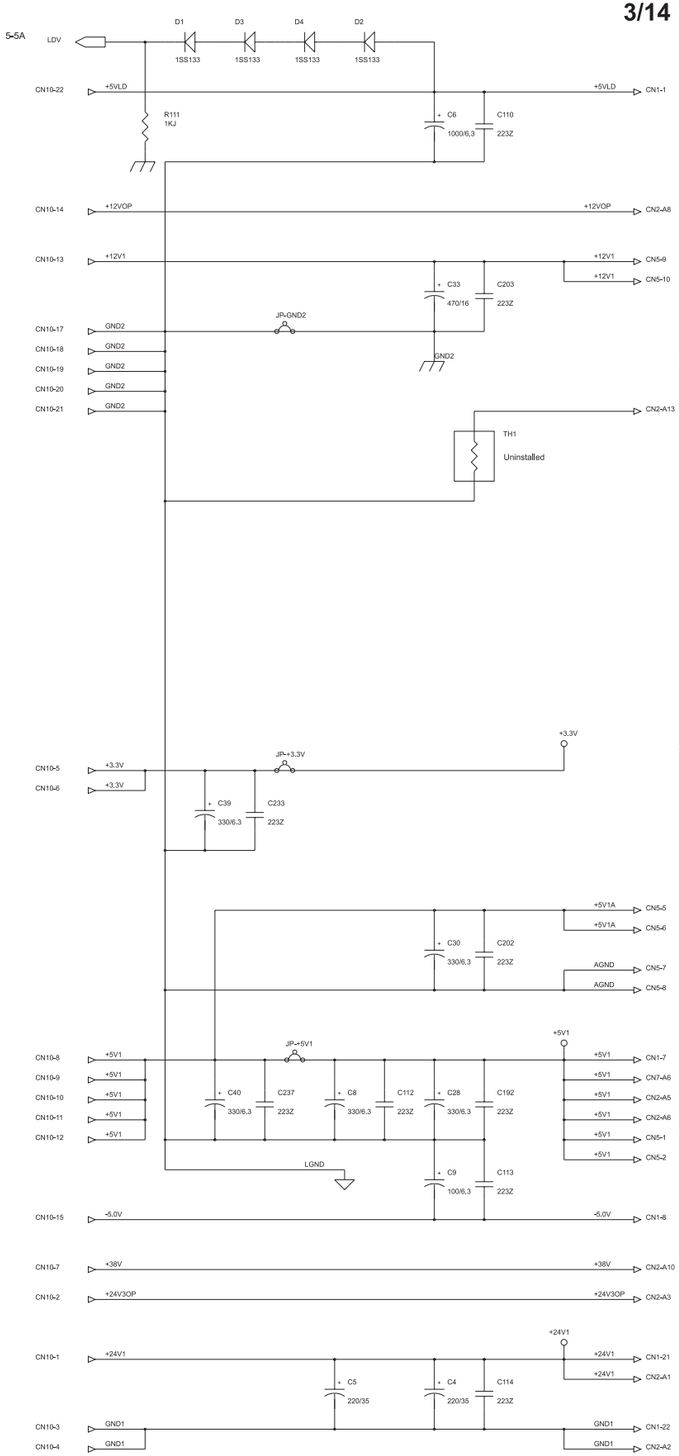
ICU PWB (CPU_G/A)



ICU PWB (POWER)

3/14





ICU PWB (IMG_G/A)

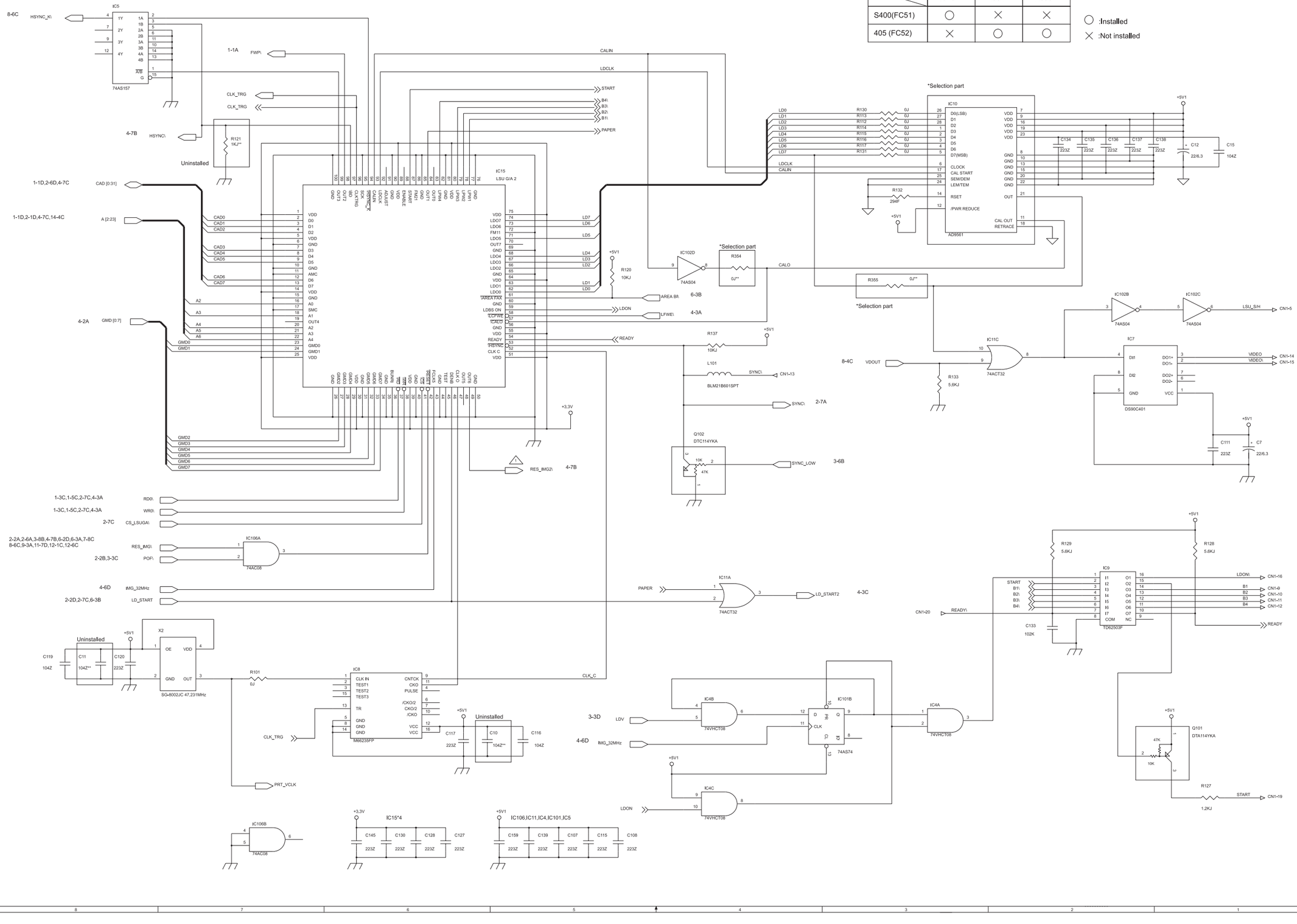
	IC17	R353
S400(FC51)	○	×
405 (FC52)	×	○

○ :Installed
× :Not installed

ICU PWB (LSU_G/A))

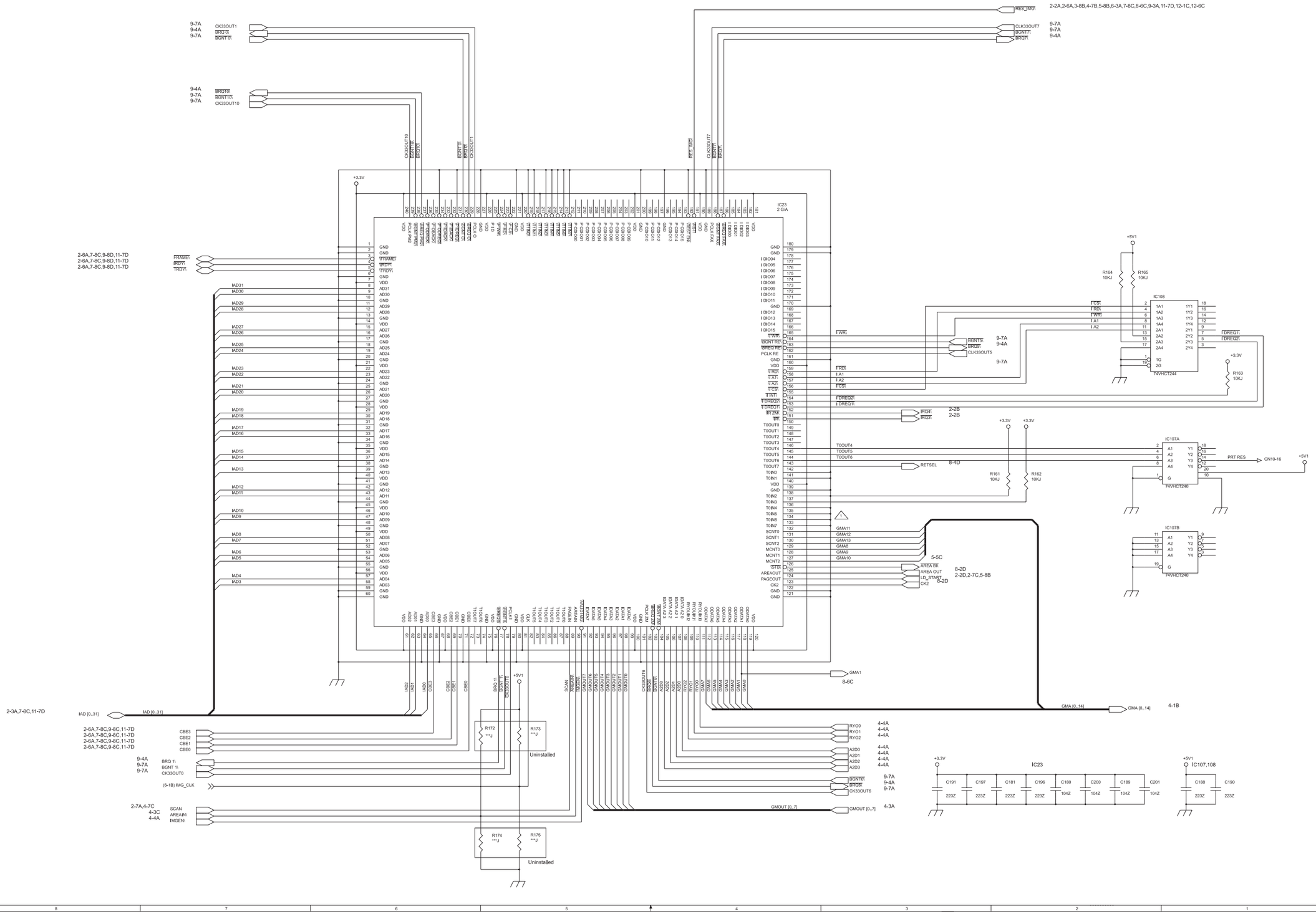
	IC10	R354	R355
S400(FC51)	○	×	×
405 (FC52)	×	○	○

○ :Installed
× :Not installed

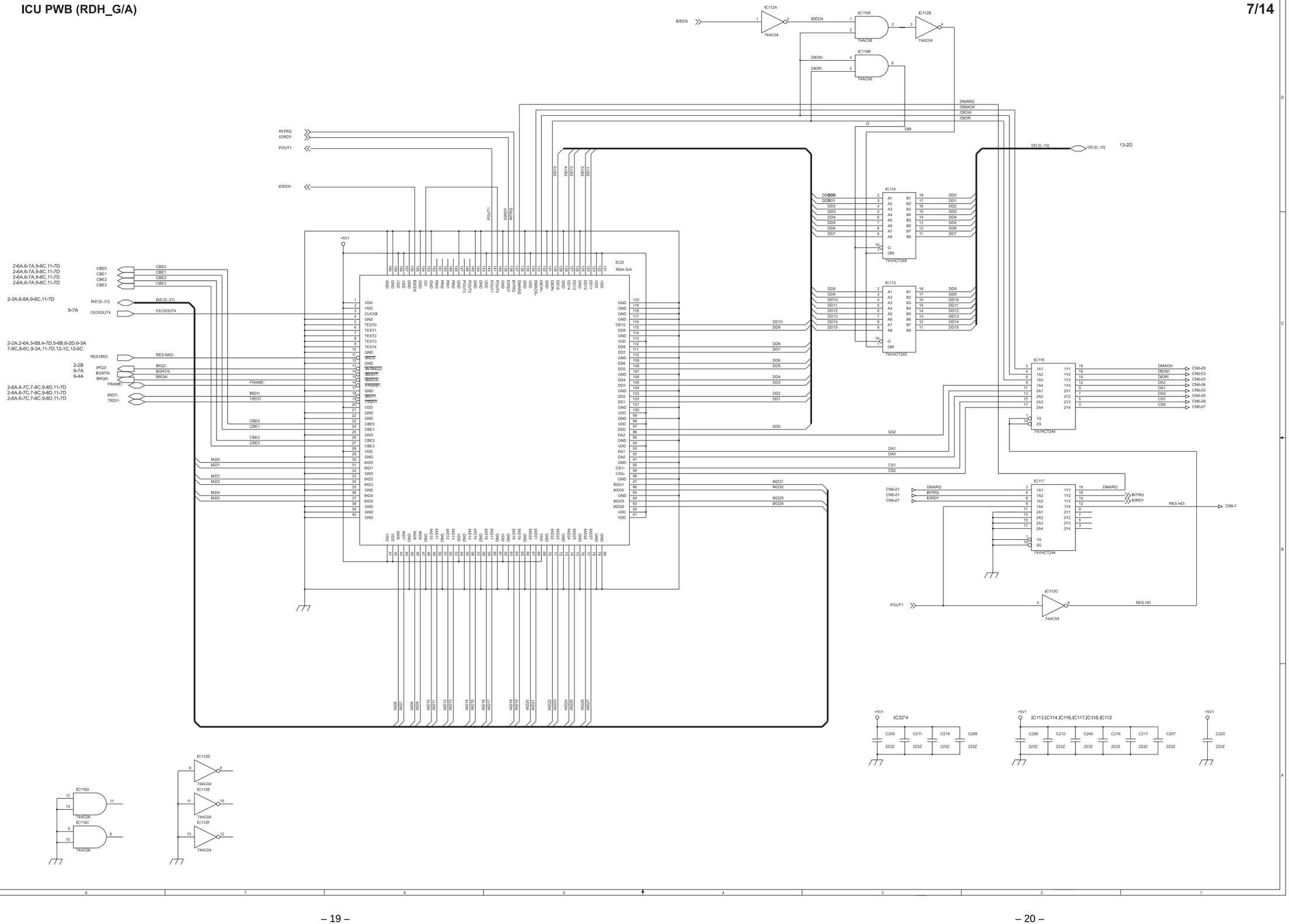


ICU PWB (2_G/A)

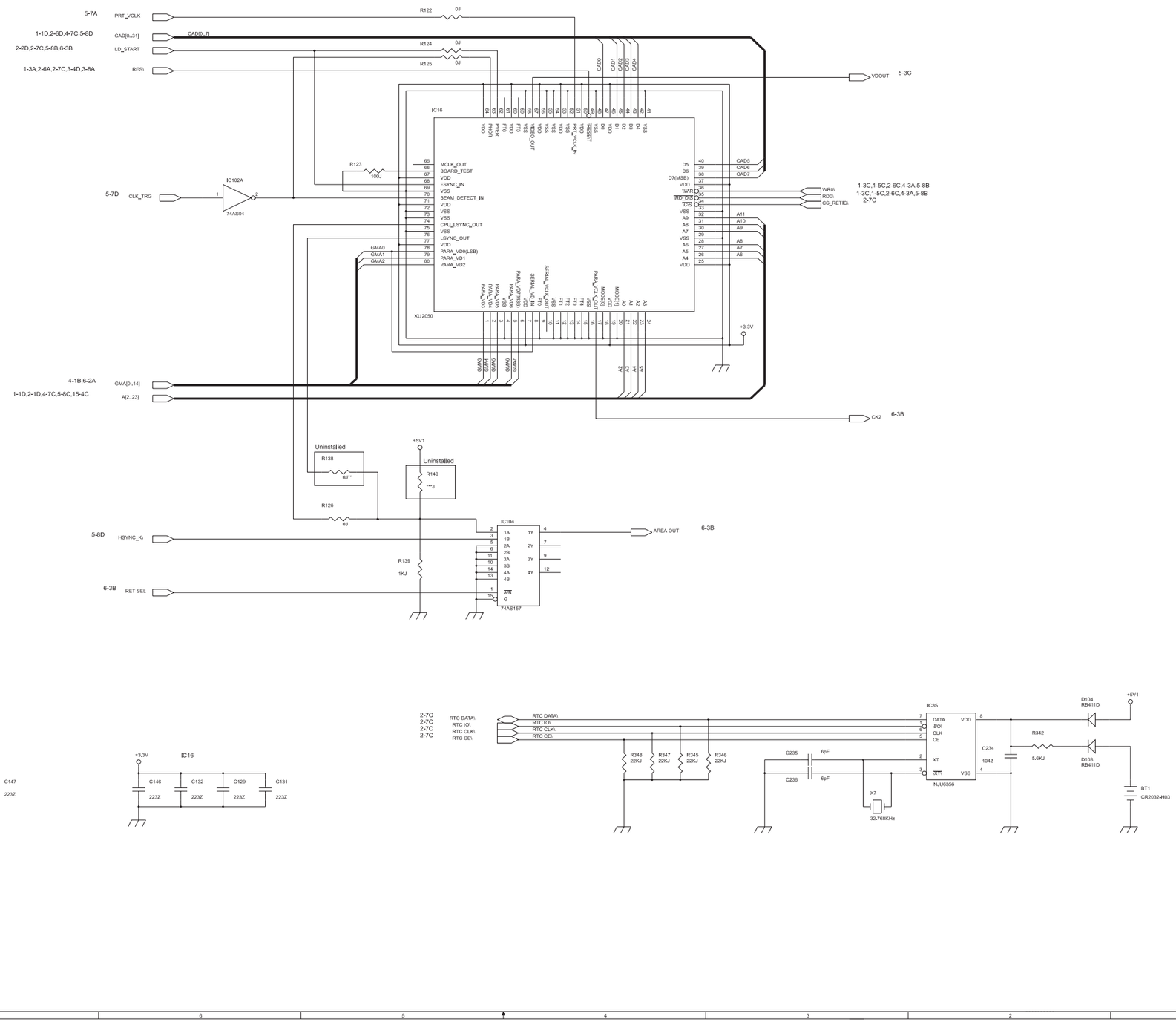
6/14



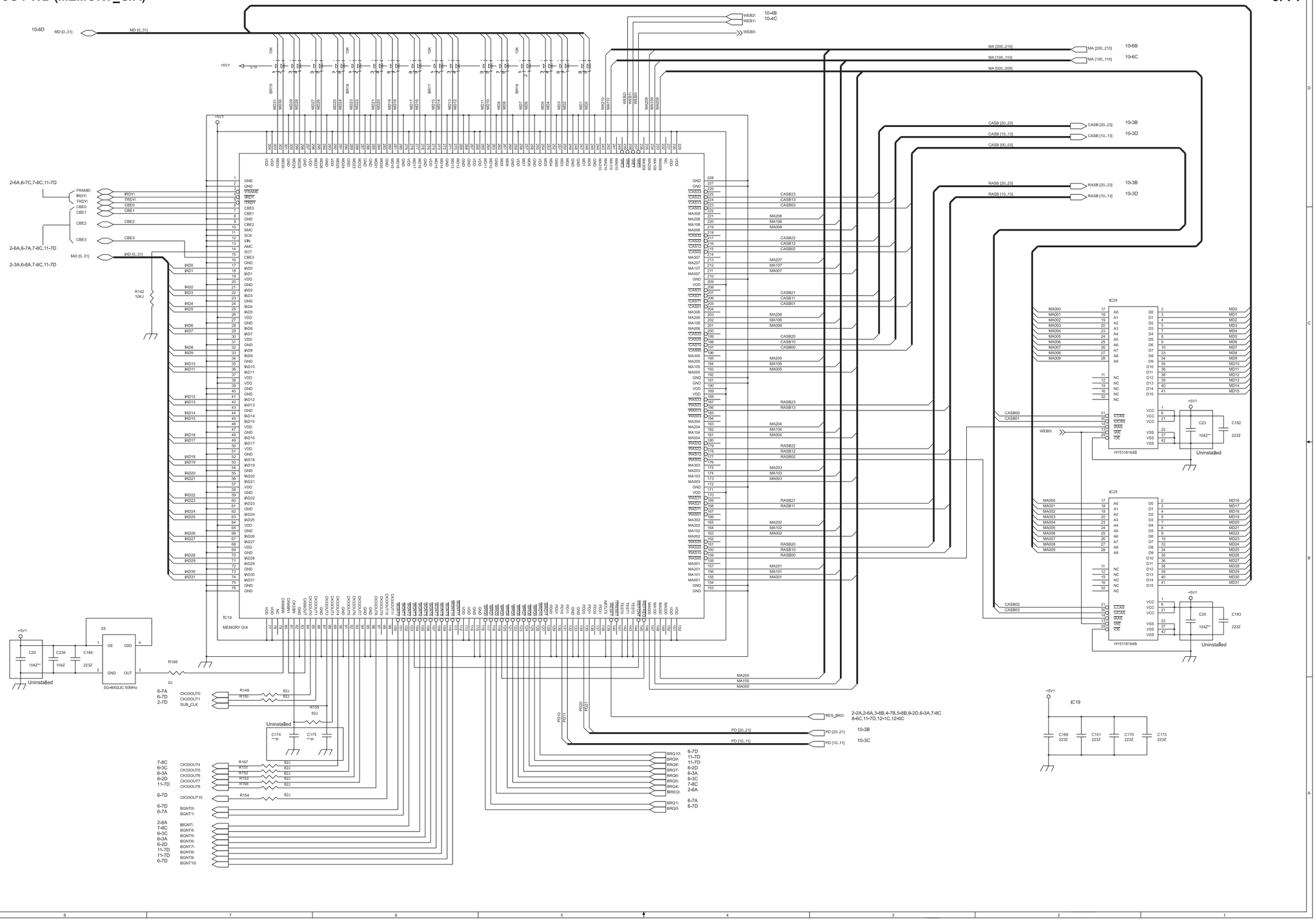
ICU PWB (RDH_G/A)



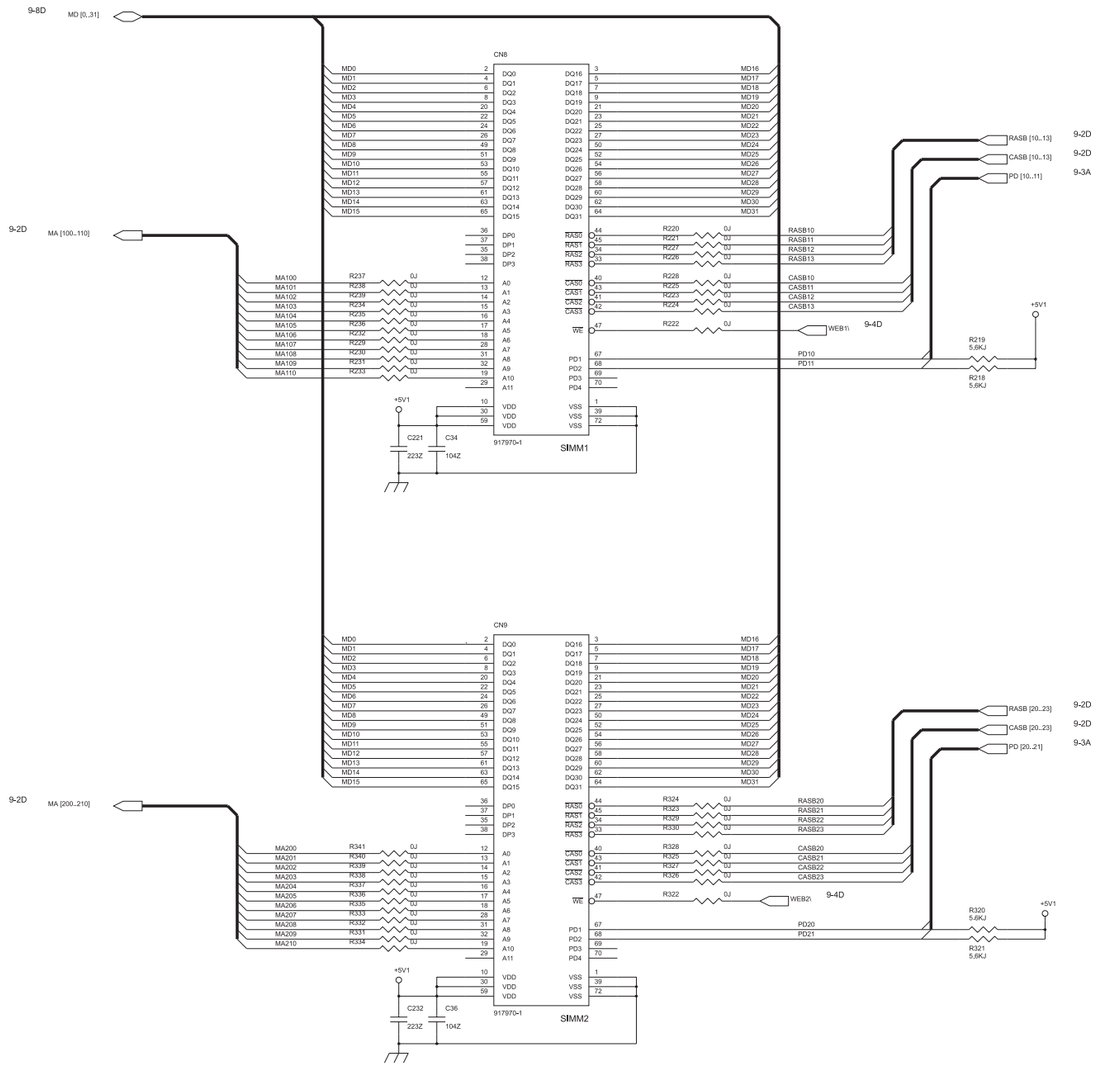
ICU PWB (RET_RTC)



ICU PWB (MEMORY_G/A)



ICU PWB (SIMM)


9-8D
MD [0..31]
9-2D
MA [100..110]
CN8
MD0 MD1 MD2 MD3 MD4 MD5 MD6 MD7 MD8 MD9 MD10 MD11 MD12 MD13 MD14 MD15
DQ0 DQ1 DQ2 DQ3 DQ4 DQ5 DQ6 DQ7 DQ8 DQ9 DQ10 DQ11 DQ12 DQ13 DQ14 DQ15
DQ16 DQ17 DQ18 DQ19 DQ20 DQ21 DQ22 DQ23 DQ24 DQ25 DQ26 DQ27 DQ28 DQ29 DQ30 DQ31
MD16 MD17 MD18 MD19 MD20 MD21 MD22 MD23 MD24 MD25 MD26 MD27 MD28 MD29 MD30 MD31
DP0 DP1 DP2 DP3
MA100 MA101 MA102 MA103 MA104 MA105 MA106 MA107 MA108 MA109 MA110
R237 R238 R239 R234 R235 R236 R232 R229 R230 R231 R233
0J
A0 A1 A2 A3 A4 A5 A6 A7 A8 A9 A10 A11
VDD VDD VDD
VSS VSS VSS
+5V1
C221 223Z
C34 104Z
917970-1
SIMM1
RASB [10..13]
CASB [10..13]
PD [10..11]
9-2D
9-2D
9-3A
R220 R221 R227 R226
RASB10 RASB11 RASB12 RASB13
R228 R225 R223 R224
CASB10 CASB11 CASB12 CASB13
RAS0 RAS1 RAS2 RAS3
CAS0 CAS1 CAS2 CAS3
R222
WE
WEB1\
9-4D
PD1 PD2 PD3 PD4
PD10 PD11
R219 5.6KJ
R218 5.6KJ
CN9
MA200 MA201 MA202 MA203 MA204 MA205 MA206 MA207 MA208 MA209 MA210
R341 R340 R339 R338 R337 R336 R335 R333 R332 R331 R334
C232 223Z
C36 104Z
SIMM2
RASB [20..23]
CASB [20..23]
PD [20..21]
R324 R323 R329 R330
RASB20 RASB21 RASB22 RASB23
R328 R325 R327 R326
CASB20 CASB21 CASB22 CASB23
R322
WEB2\
PD20 PD21
R320 5.6KJ
R321 5.6KJ

ICU PWB (SCSI_G/A)

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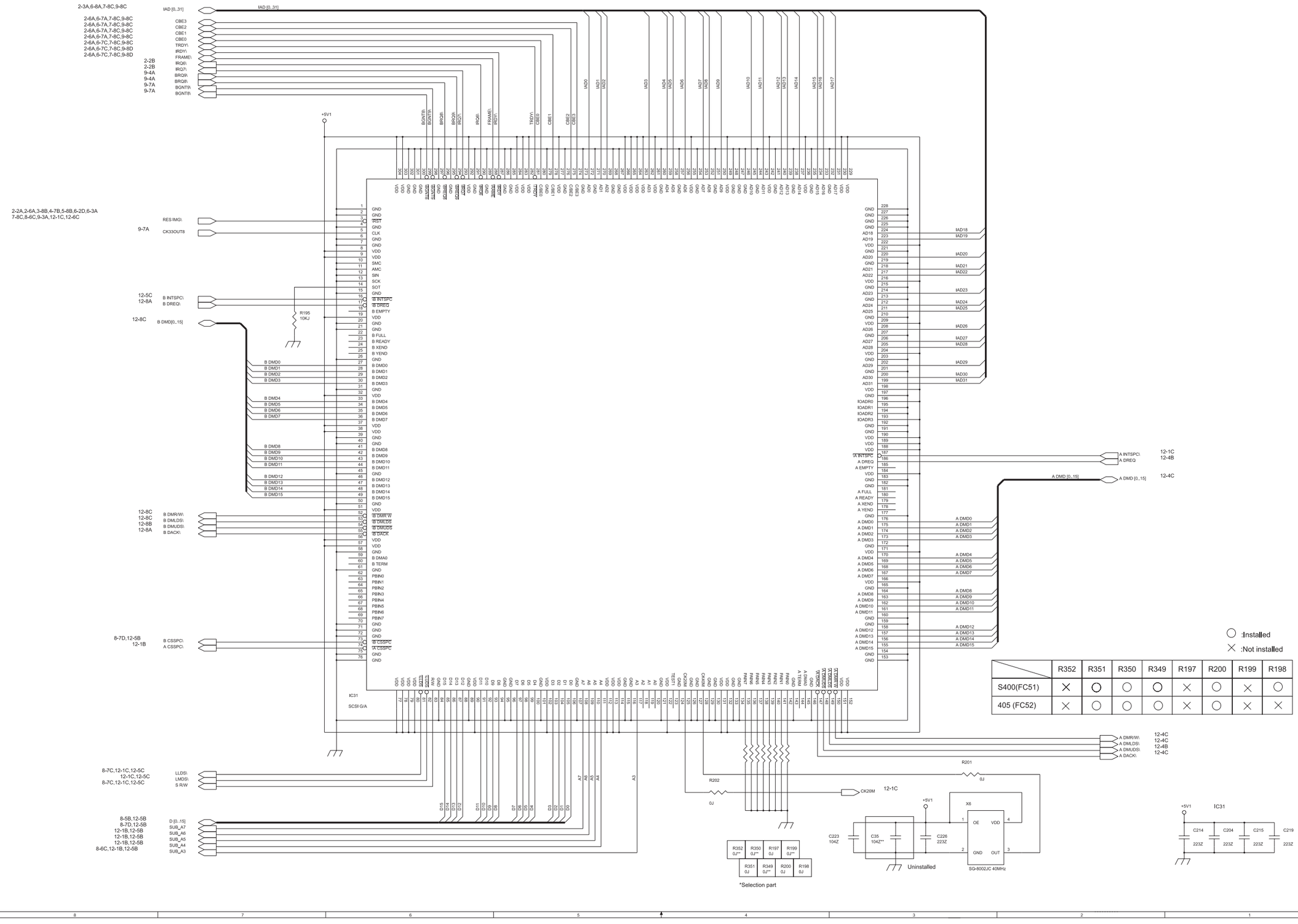

	R352	R351	R350	R349	R197	R200	R199	R198
S400(FC51)	×	○	○	○	×	○	×	○
405 (FC52)	×	○	○	○	×	○	×	×

ICU PWB (MB86604L)

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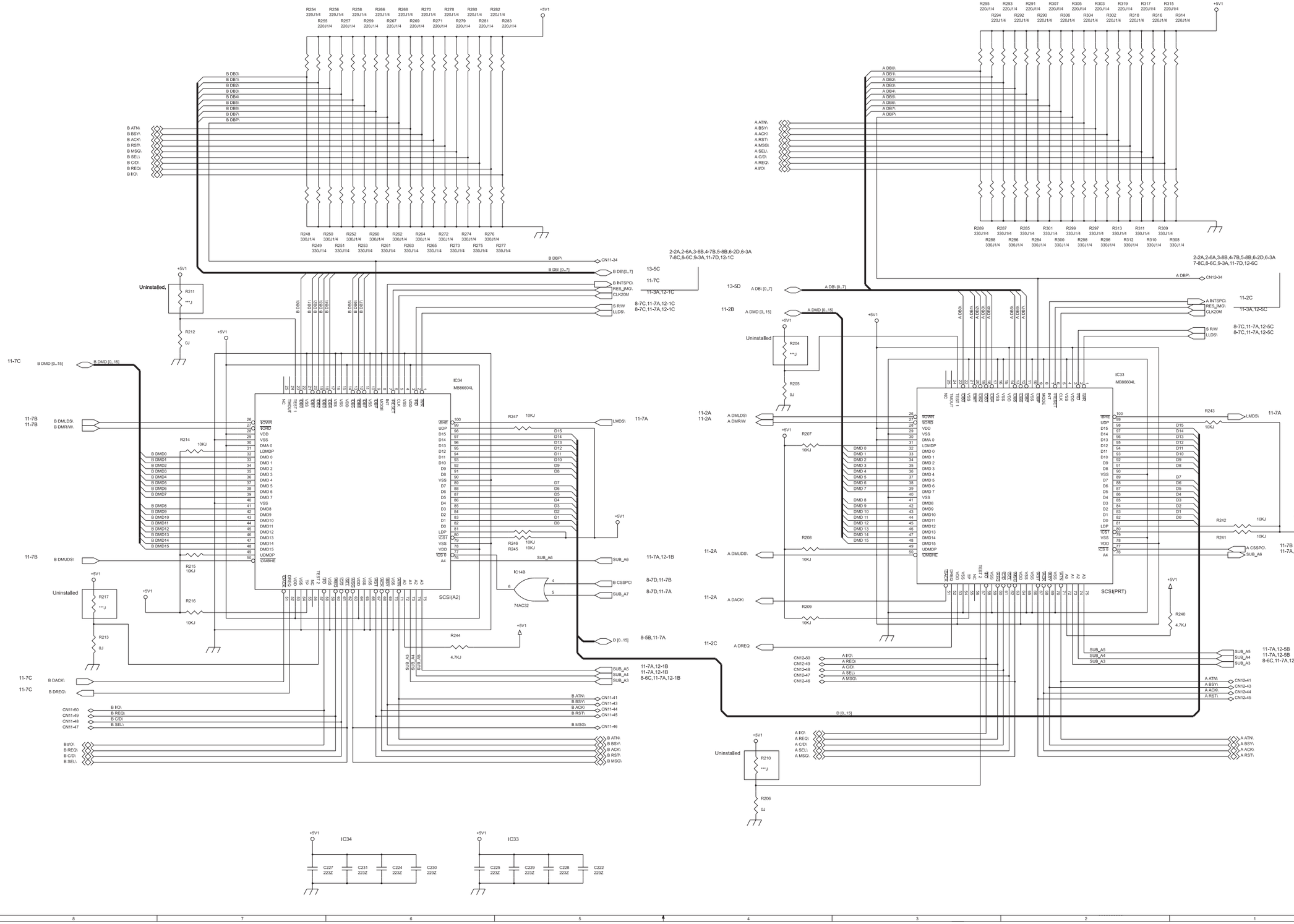
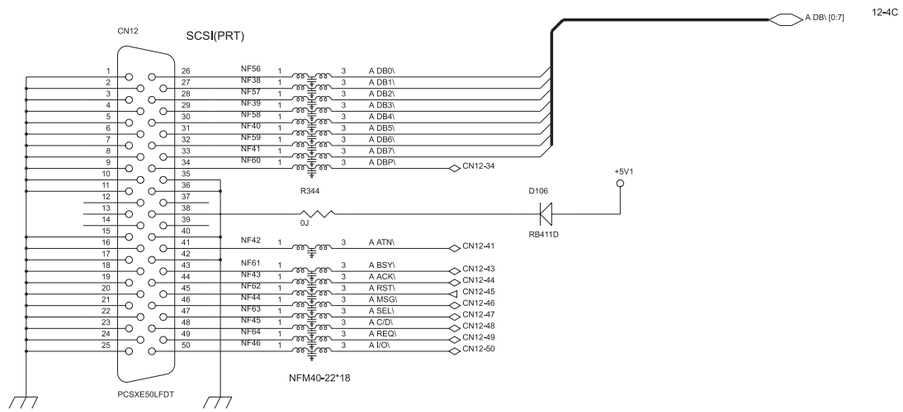
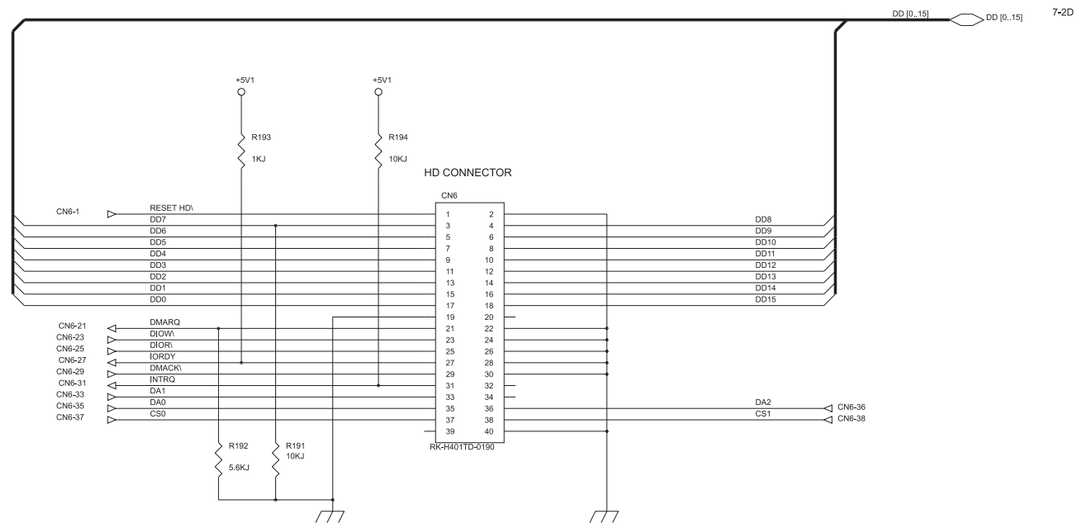
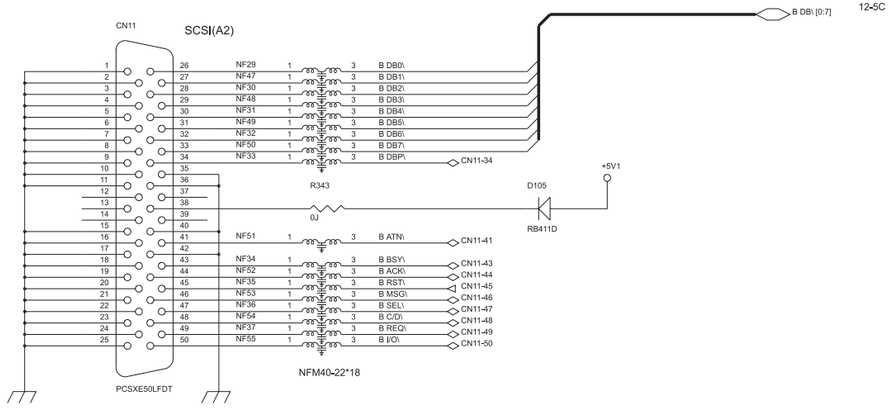


ICU PWB (HD/SCSI)

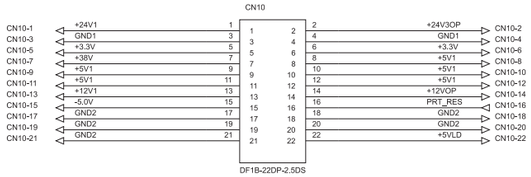
13/14

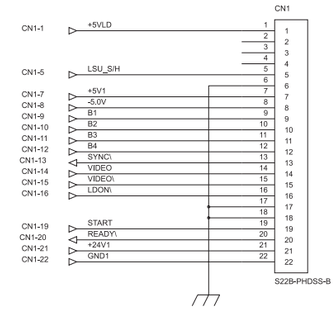


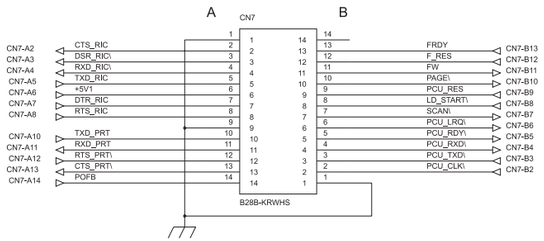


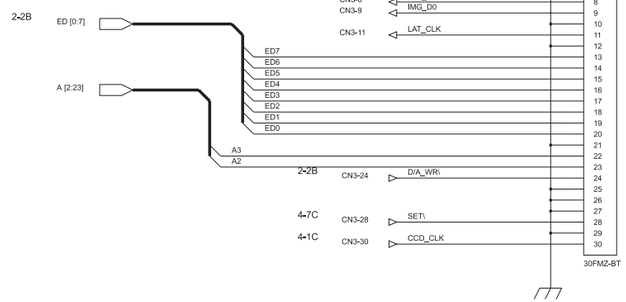


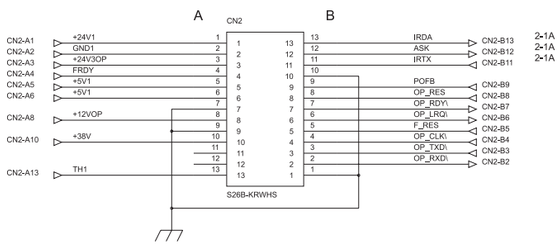
ICU PWB (CONECT)

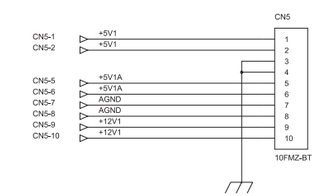








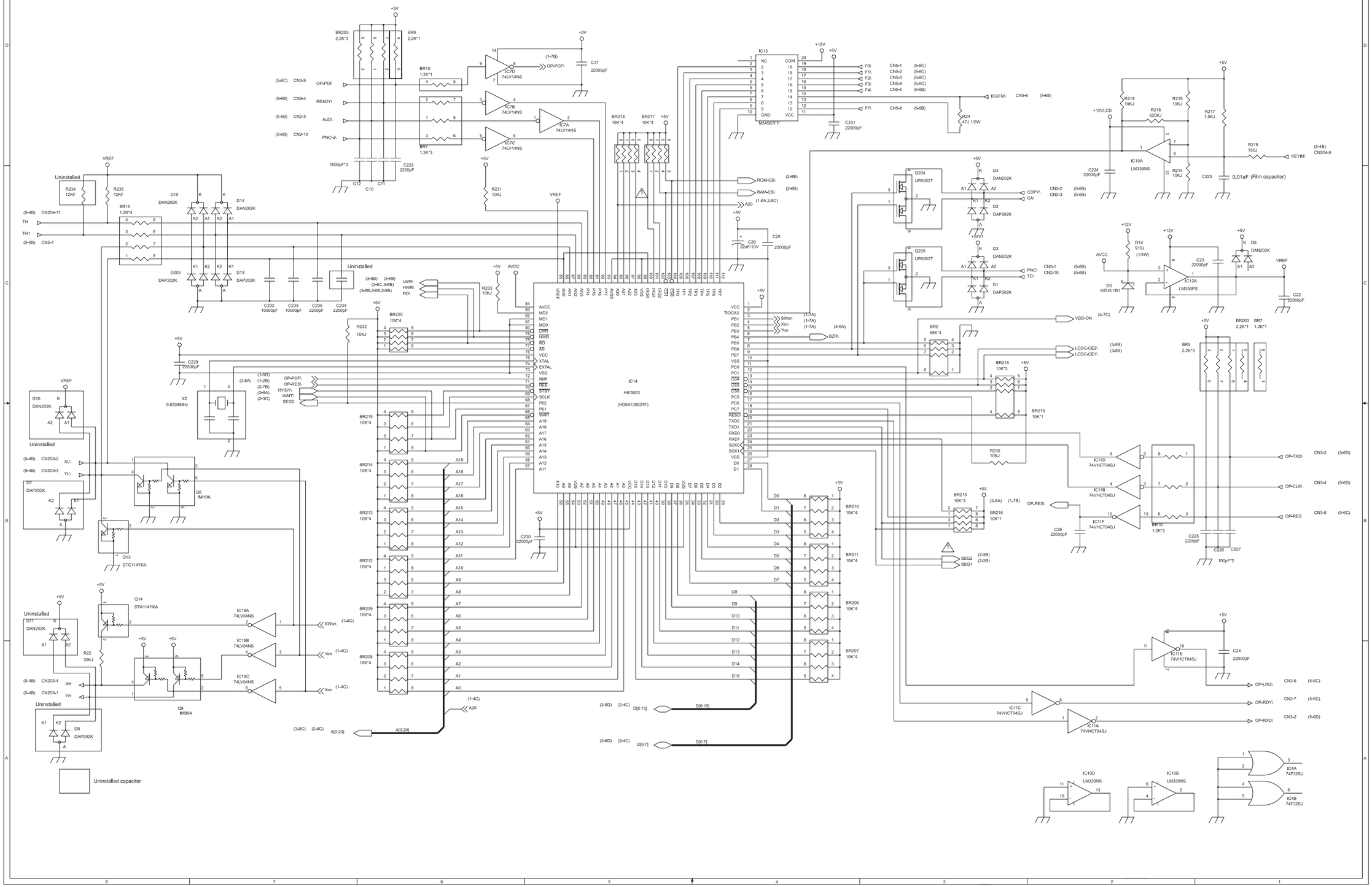




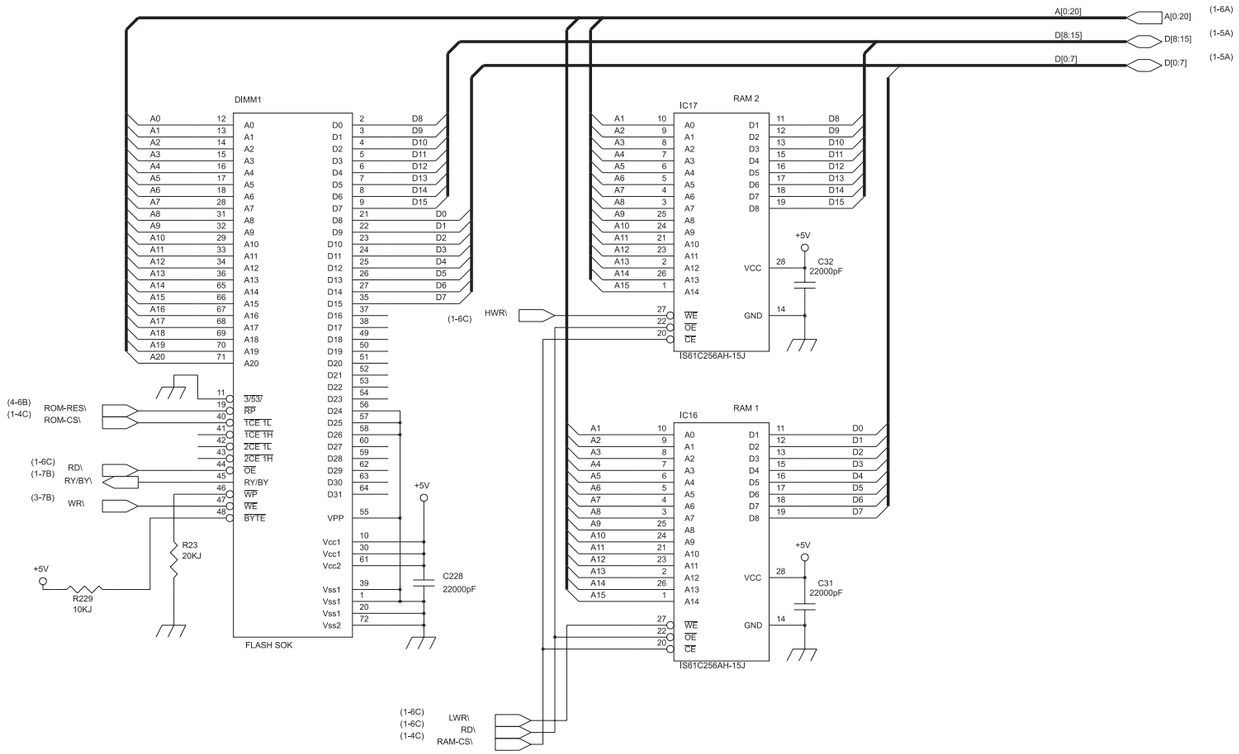
[4] Operation control PWB

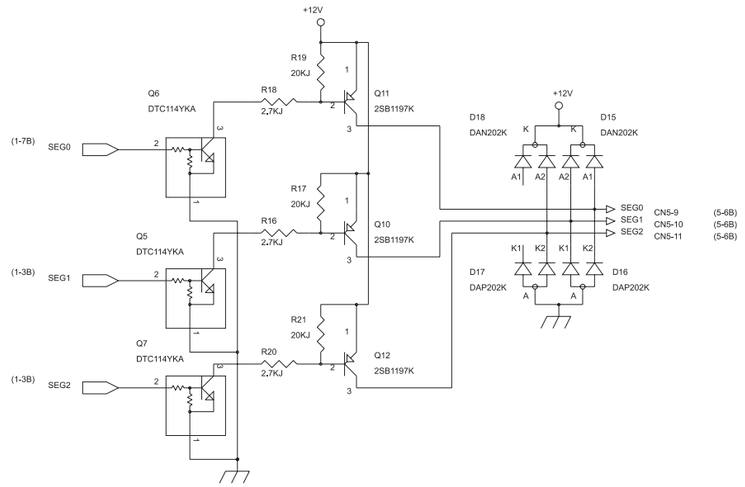
OP CONTROL PWB (1-N1394FC)

1/5

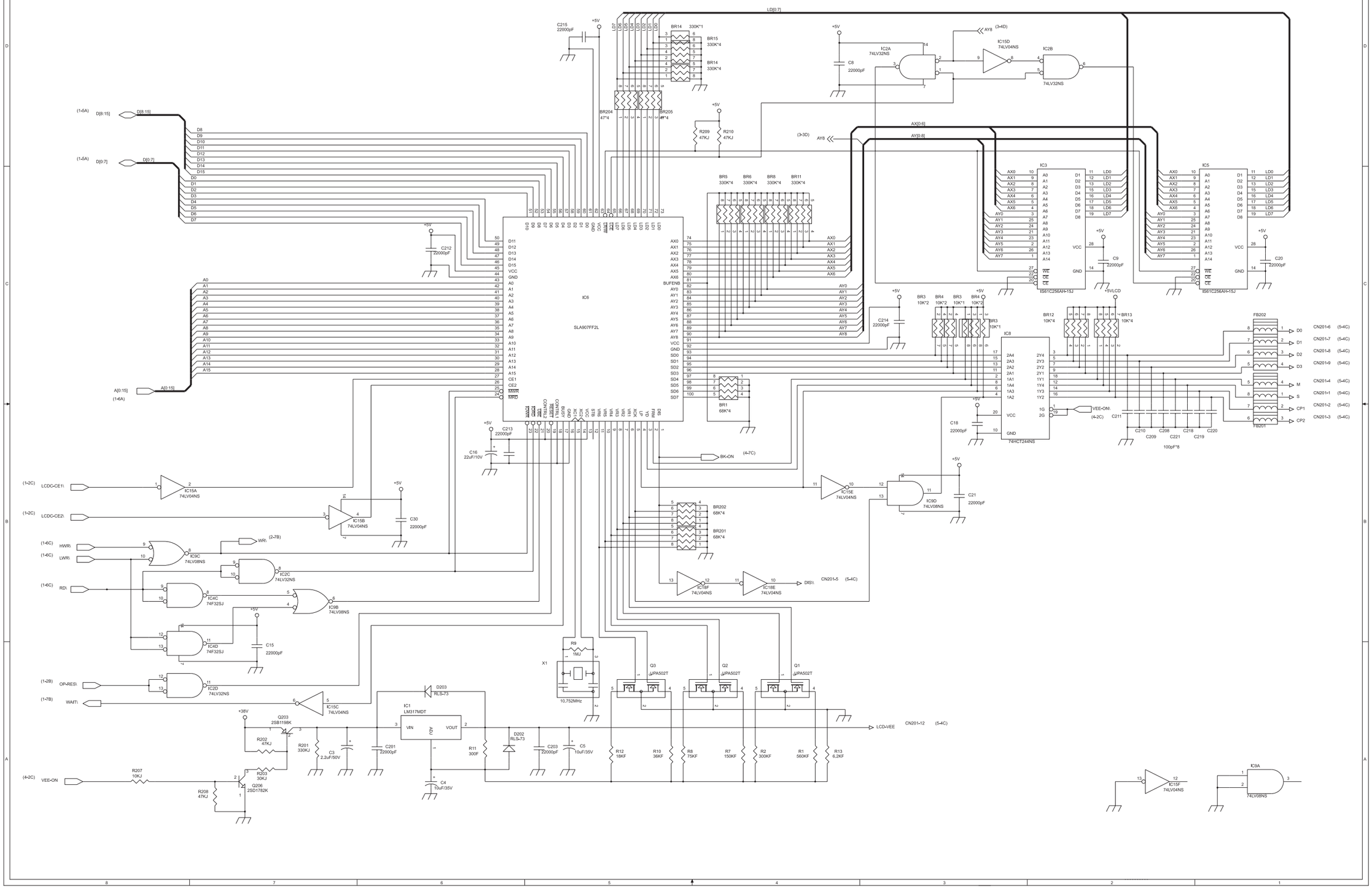


OP CONTROL PWB (1-N1394FC)



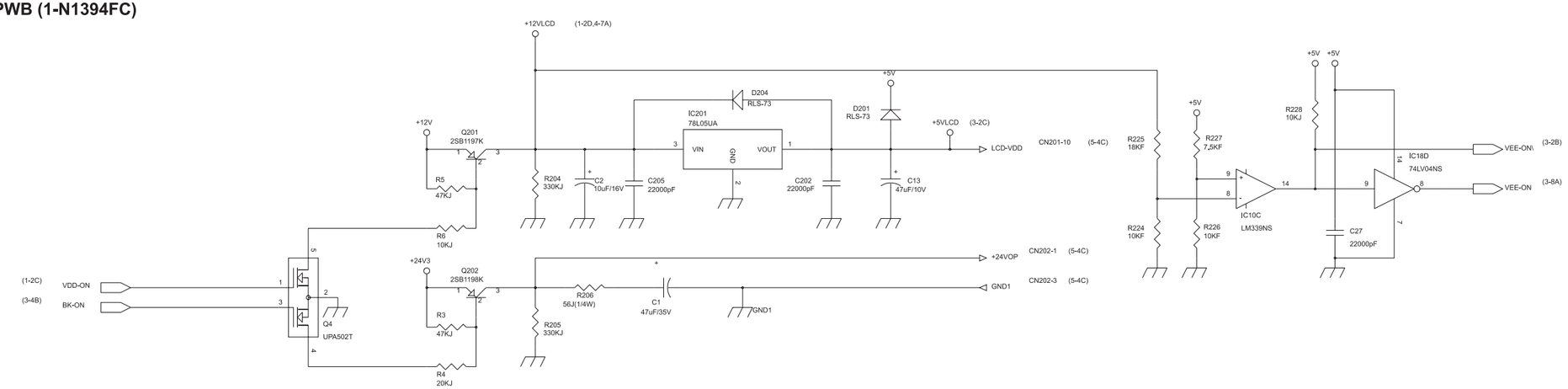


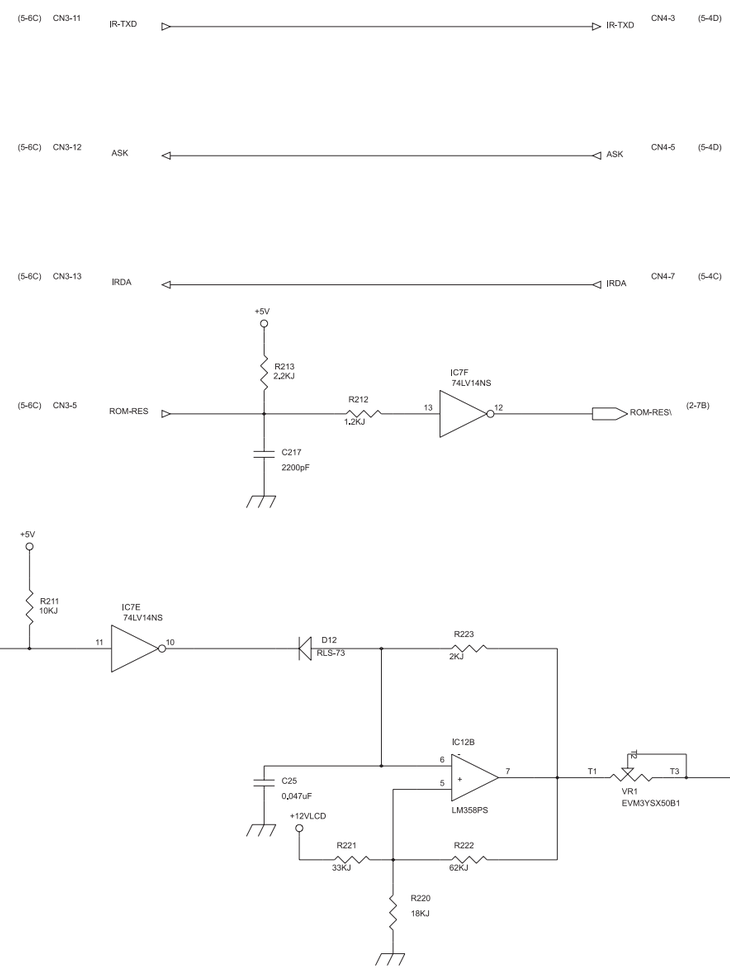
OP CONTROL PWB (1-N1394FC)

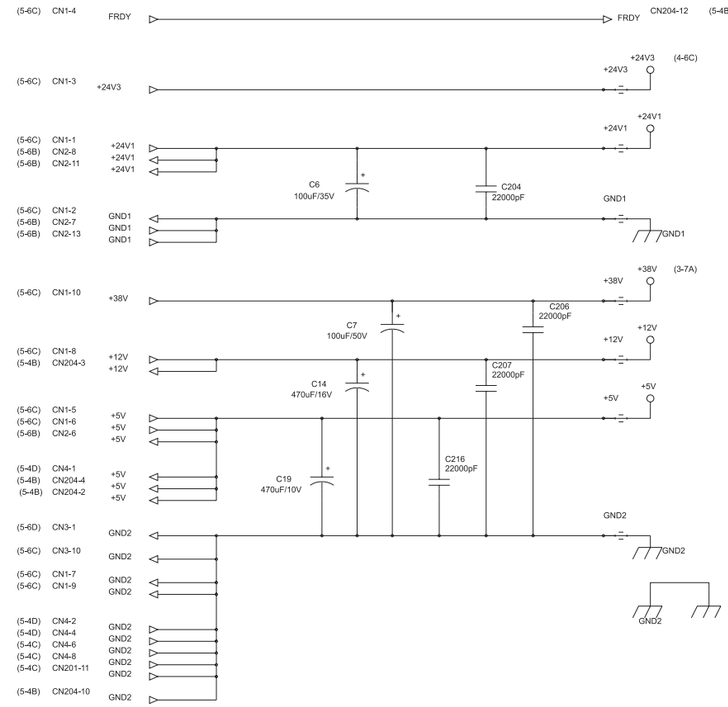


OP CONTROL PWB (1-N1394FC)

4/5

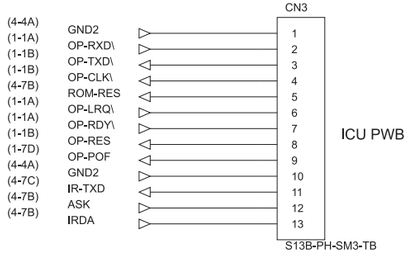


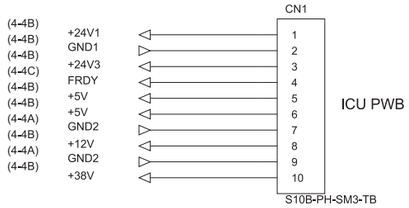


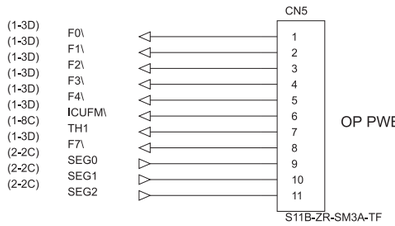


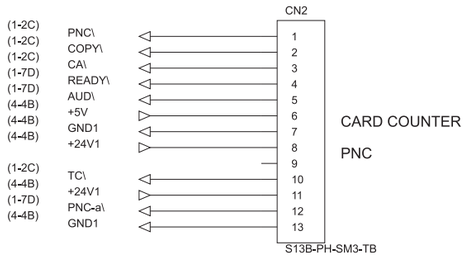
OP CONTROL PWB (1-N1394FC)

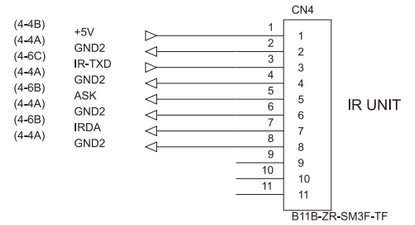
5/5

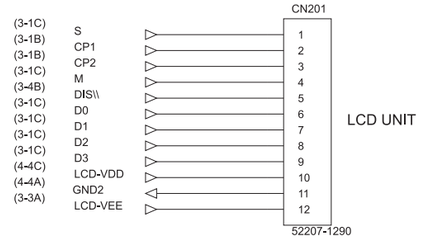


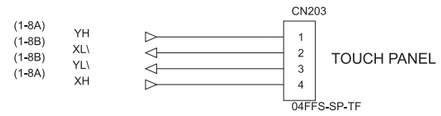


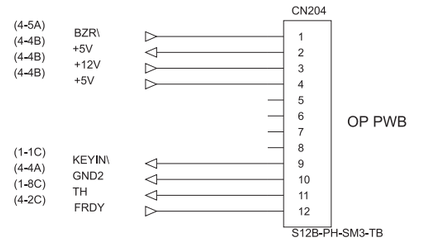








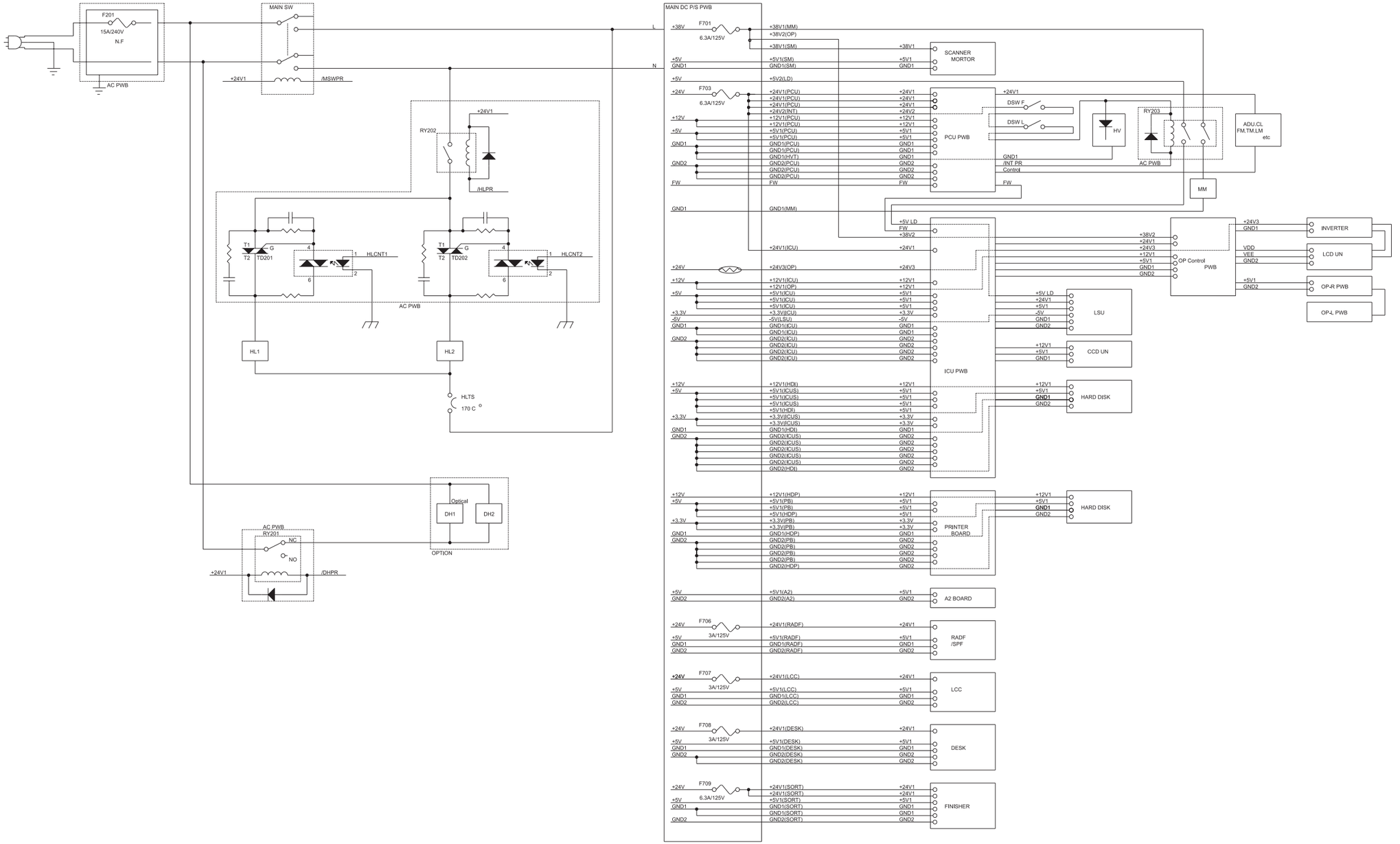




[6] AC/DC power supply

DC POWER SUPPLY (100V series)

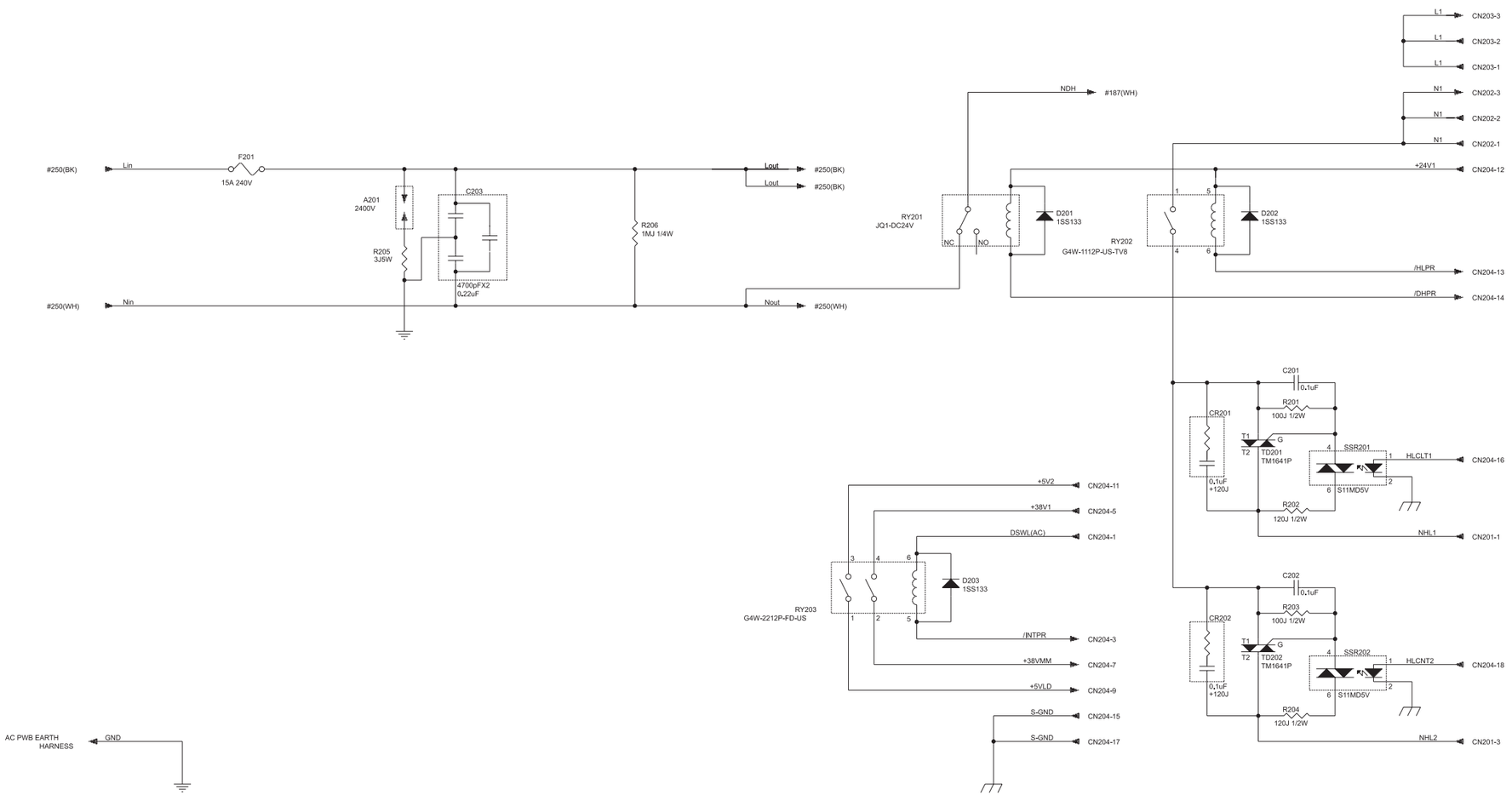
1/1



[7] AC PWB

AC PWB (100V series)

1/1



CN201
B2P3-VH

1	NHL1
2	
3	NHL2

CN202
B03P-VL

1	N1
2	N1
3	N1

CN203
B03P-VL-R

1	L1
2	L1
3	L1

CN204
DF1B-20P-2.5DSA

1	DSWL(AC)
2	
3	/INTPR
4	
5	+38V1
6	
7	+38VMM
8	
9	+5VLD
10	
11	+5V2
12	+24V1
13	/HLPR
14	/DHPR
15	S-GND
16	HLCNT1
17	S-GND
18	HLCNT2
19	
20	

DC POWER SUPPLY PWB (200V series)

CN702	
1	-5V(LSU)
2	FM
3	N.C
4	N.C
5	+3.3V(IOG)
6	+3.3V
7	+3.3V(IOG)
8	+3.3V(PB)
9	+3.3V(IOJ)
10	+3.3V(PB)
11	+5V2(LD)
12	+5V1
13	+5V(1HDI)
14	+5V(1HDP)
15	+5V(1IOA)
16	+5V(1PB)
17	+5V(1IOB)
18	+5V(1PB)
19	+5V(1IOB)
20	+5V(1A2)
21	+5V(1IOJ)
22	+5V(1HP)
23	+5V(1IOJ)
24	+5V(1PCU)
25	+5V(1IOJ)
26	+5V(1PCU)
27	+5V(1SSRT)
28	+5V(1LCC)
29	+5V(1SSRT)
30	+5V(1HADF)

B29P-XADSS-F

CN703	
1	GND2(SSRT)
2	GND2(HADF)
3	GND2(DESK)
4	GND(LCC)
5	GND2(DESK)
6	GND(LCC)
7	GND2(IOJ)
8	GND(LCC)
9	GND2(IOJ)
10	GND2(PCU)
11	GND2(IOJ)
12	GND2(PCU)
13	GND2(IOJ)
14	GND2(PCU)
15	GND2(IOB)
16	GND2(A2)
17	GND2(IOB)
18	GND2(PB)
19	GND2(IOB)
20	GND2(PB)
21	GND2(IOB)
22	GND2(PB)
23	GND2(IOJ)
24	GND2(PB)
25	GND2(HDI)
26	GND2(HP)

B26P-XADSS-F

CN704	
1	+12V1(GP)
2	+12V1(PCU)
3	+12V1(IOJ)
4	+12V1(PCU)
5	+12V1(HDI)
6	+12V1(HDP)
7	+24V3(GP)
8	GND1(HDI)
9	+24V1(SSRT)
10	GND1(SSRT)
11	+24V1(SSRT)
12	GND1(SSRT)
13	+24V1(DESK)
14	GND1(DESK)
15	+24V1(LCC)
16	GND1(LCC)
17	+24V1(HADF)
18	GND1(HADF)
19	+24V1(IOJ)
20	GND1(IOJ)
21	+24V1(INT)
22	GND1(HDP)
23	+24V1(PCU)
24	GND1(IOJ)
25	+24V1(PCU)
26	GND1(PCU)
27	+24V1(PCU)
28	GND1(PCU)
29	+3V1(SM)
30	GND1(SM)
31	+3V2(GP)
32	GND1(INT)
33	+3V1(HM)
34	GND1(HM)

B34P-XADSS-F

CN705	
1	GTP
2	15Hz(CIDN)
3	GND1(CC1)
4	GND2
5	GND2(FAX)
6	GND2(FAX)
7	GND2(FAX)
8	GND2(FAX)
9	GND2(FAX)
10	GND2(FAX)
11	+5V1
12	+12V1
13	+5V1(FAX)
14	+12V1(FAX)
15	+5V1(FAX)
16	+12V1(FAX)
17	+5V1(FAX)
18	+12V1(FAX)

B18P-XADSS-F

CN706	
1	+12V5LB
2	GND2(FAX)
3	DC CNT

B3P-XASK-1

CN707	
1	-
2	N.C
3	+12V5LB
4	+24V
5	+5V
6	GND
7	GTP
8	15Hz(CIDN)

B8P-XASK-1

CAUTION FOR BATTERY REPLACEMENT

(Danish) ADVARSEL !
Lithiumbatteri – Eksplosionsfare ved fejlagtig håndtering.
Udskiftning må kun ske med batteri
af samme fabrikat og type.
Levér det brugte batteri tilbage til leverandoren.

(English) Caution !
Danger of explosion if battery is incorrectly replaced.
Replace only with the same or equivalent type
recommended by the manufacturer.
Dispose of used batteries according to manufacturer's instructions.

(Finnish) VAROITUS
Paristo voi räjähtää, jos se on virheellisesti asennettu.
Vaihda paristo ainoastaan laitevalmistajan suosittelemaan
tyyppiin. Hävitä käytetty paristo valmistajan ohjeiden
mukaisesti.

(French) ATTENTION
Il y a danger d'explosion s' il y a remplacement incorrect
de la batterie. Remplacer uniquement avec une batterie du
même type ou d'un type équivalent recommandé par
le constructeur.
Mettre au rebut les batteries usagées conformément aux
instructions du fabricant.

(Swedish) VARNING
Explosionsfara vid felaktigt batteribyte.
Använd samma batterityp eller en ekvivalent
typ som rekommenderas av apparattillverkaren.
Kassera använt batteri enligt fabrikantens
instruktion.

SHARP

SHARP CORPORATION
Printing & Reprographic Systems Group
Quality & Reliability Control Center
Yamatokoriyama, Nara 639-1186, Japan
1999 January Printed in Japan

The following document describes the details of additions and changes.

Add to or replace the AR-S330/S280/F280S/R/F280S Service Manual (Code: 00ZARF280/A1J) according to the table below.

Page	
1-3-A	Add to the front of 1-3.
2-5 ~ 2-10	Replace with 2-5.
3-1 ~ 3-4	Replace with 3-1 ~ 3-3.
4-7 ~ 4-12	Add to the rear of 4-6.
6-10 ~ 6-17	Add to the rear of 6-9.
7-1 ~ 7-8	Replace with 7-1 ~ 7-8.
7-11 ~ 7-16	Replace with 7-11 ~ 7-16.
7-25 ~ 7-27	Replace with 7-25 ~ 7-26.
8-3 ~ 8-86	Replace with 8-3 ~ 8-116.
9-1-A, 9-2-A	Add to the rear of 9-2.
9-3 ~ 10-7	Replace with 9-3 ~ 10-7.
10-18 ~ 10-21	Replace with 10-18 ~ 11-1.
11-1 ~ 12-1	Replace with 11-2 ~ 12-1.